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Pneumonia—*Vaux and Benz*

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THE NEED FOR TRAINED PERSONNEL*

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THOSE who appreciate that public health service is necessary, recognize also that trained full-time personnel is essential to its success. Public health is, or should be, definitely established as a vocation. The more progressive communities already so regard it. It should not be considered in any community as an incidental activity to be conducted on a part-time basis by those whose chief interests lie in other fields. In considering the needs for public health personnel we can, I think, limit consideration to those who are to serve on a full-time basis.

The outstanding pubic health executives of this country have experienced difficulty in securing appropriations for the maintenance and extension of the activities of their organizations, but they are agreed that the securing of competent personnel to fill vacancies is even more difficult. A real shortage exists. The object of this paper is to discuss the extent of this shortage and how to relieve it.

What constitutes adequate health service? The views of authorities differ rather widely on this question. The conservative group, composed of those who know the difficulties of obtaining appropriations from states, counties and cities that are poor, believe that under present conditions a per capita expenditure for local public health service of from 50 cents to 75 cents is all that should be expected. Another group, composed of those who have worked in prosperous communities, have been able to obtain funds more easily and would advocate an expenditure for local health service of from $2.00 to $4.00 per capita. A number of prosperous communities have been, or may be, sufficiently stimulated regarding health protection to supply these amounts. However, it will be a long time before the rural sections, and towns and villages which compose the average county will be able to spend anything like this amount. Under present conditions $1.00 per capita will probably represent the limit for them.

A study of 290 county health organizations of 32 states, with the exception of 11 all organized since 1915, leads us to believe that, for purposes of the present estimate, 20,000 inhabitants may be regarded as constituting a satisfactory unit for a local health organization. This unit should have the following full-time personnel: 1 medical health officer, 2 public health nurses, 1 sanitary inspector and 1 stenographer-clerk.

Counting the nation's population as 113,000,000, there would be needed 5,650 such health units. On this basis, the country would need for local health organizations the following workers:

* Read at the Fourth General Session of the American Public Health Association at the Fifty-fourth Annual Meeting at St. Louis, Mo., October 20, 1925.

NEEDS FOR LOCAL HEALTH ORGANIZATIONS

5,650	Health officers
11,300	Public health nurses
5,650	Sanitary officers
5,650	Office assistants
28,250	Total

In addition, personnel would be needed for the state boards of health, the federal health services, the volunteer health organizations and the business organizations. Of course, if the personnel above suggested should be supplied, fewer workers would be needed by the central organizations and by private agencies. We may assume that for the federal, state and private health services, it would be conservative to add 20 per cent in personnel, and an additional 5 per cent for replacement, giving a grand total of approximately 35,000 health workers.

This central personnel would, of course, be made up of executives and specialists, such as epidemiologists, sanitary engineers, laboratory workers, statisticians, and specialists in other essential branches of service, such as infancy, maternity and child welfare activities. This estimate as to the need for public health personnel, certainly with respect to the number of public health nurses, is much more conservative than that of the Research Division of the American Child Health Association, the National Organization for Public Health Nursing, and other agencies. However, these organizations doubtless include in the public health program a certain amount of hospital work, bedside care and other sickness and social work which in our estimate are not considered as strictly public health activities.

A hurried study of the public health personnel now employed in the United States by federal, state, county and municipal boards of health and by other agencies shows that there are approximately 1,300 health officers and 5,000 public health nurses employed by official agencies, and perhaps an additional 7,000 public health nurses employed by other agencies interested entirely or partly in public health activities. It is estimated by Draper, of the U. S. Public Health Service (1923), that there are approximately 17,000 persons engaged by the official agencies in health work, but that all except about 6,300 (1,300 health officers and 5,000 nurses) would be classed as technicians, sanitary inspectors, stenographers, clerks, bookkeepers, etc.

TABLE I

AN APPROXIMATION OF THE PRESENT SUPPLY AND NEED OF FULL-TIME PUBLIC HEALTH PERSONNEL

	Estimates of the present supply				JAF's			
	Dr. Draper	Dr. Freeman	Dr. Ferrell	Nat'l Org. of P.H. Nursing	Estimate of No. Needed	Present Shortage	Av. Needed Over 10 yrs.	Av. Needed Over 20 yrs.
Health Officers of the U.S.P.H.S.	260	200	225	.....	.....	.....	.....	.....
Health Officers: State, City, County	1,020	970	850	.....	7,000	5,700	570	285
Sanitary Engineers								
	1,280	1,170	1,075					
P. H. Nurses								
With official agencies	5,000	5,000	.....	.....	14,000	9,000	900	450
With private agencies (a)	.....	.....	.....	6,398(c)	.....	38,000(d)	3,800	1,900
Other health workers (b)	10,720	3,830	.....	4,773(c)	14,000	3,000	300	150
Total of all types	17,000	10,000	.....	.....	35,000	approx. 20,000	2,000	1,000

(a) This includes private agencies, such as school boards, industries, social agencies, etc.
(b) Sanitary inspectors, technicians, office assistants, clerks, etc.
(c) N.O.P.H.N. Census of Public Health Nursing, 1924, exclusive of hospital social service, dispensary and industrial nursing.
(d) One public health nurse for each 2,000 population, as advocated by certain authorities.

NOTE—Sixty-four medical schools of recognized standing graduate approximately 4,000 physicians a year. The N.O.P.H.N. state that there are 50,000 nurses in all and that 12,000 are engaged in public health work. They also estimate that 15,000 nurses are graduated yearly. Data regarding the number of public health nurses trained yearly, is not available.

The clerical personnel and sanitary inspectors usually can be obtained and trained locally. There is not apparently any great shortage in the supply of sanitary engineers or technicians. The most urgent need at present seems to be for qualified health officers and public health nurses. This discussion accordingly may be directed to the present supply and prospective needs of these two groups.

Table I shows the present supply as estimated by Drs. Draper, Freeman and Ferrell, and by the National Organization for Public Health Nursing, together with estimates of the present shortage. Certain estimates would allow one nurse for approximately 2,000 people, whereas our estimate, including the provision for supervisors, would allow one nurse for each community of approximately 8,000 people. The per capita cost, based on our estimates, for the local health organizations would range from 50 cents to 75 cents and an additional 25 per cent or more would be necessary to cover the cost of federal and state personnel. Though estimates vary, all agree that the need is large.

We may then direct attention to methods for attracting men and women of the best type to public health as a career and to supplying essential training. Some progress has been made. Schools of public health and of public health nursing have been established; summer courses in public health have been conducted by large educational institutions; field training stations have been established; pamphlets on public health as a career have been published and distributed; health institutes have been conducted and conferences of health workers have been held; correspondence study courses have been conducted; lectures have been given in schools and colleges, moving picture films have been prepared and exhibited; and medical schools and other educational institutions have been urged to give more systematic courses in public health, designed to stimulate greater interest in public health careers.

We have not available the record of health officers and public health nurses trained by schools of public health in recent years for service in the United States. However, we know there has been a perceptible increase, but that the number trained is far short of the demand. The question arises as to whether or not the activities enumerated are satisfactory and should be systematized and extended, or whether we should make an entirely new approach to the problem. The question arises also as to how and by whom the work should be carried on. These questions are placed before you for consideration.

You may be aware that the American Child Health Association, the Commonwealth Fund, the American Red Cross, and other agencies have helped in recent years to raise the standards of public health personnel by granting scholarships and by gifts. The International Health Board has contributed during the past 2 or 3 years to improving the situation. Thirteen state health executives were enabled to study health procedures in other states; 58 fellowships to schools of public health were given to outstanding health workers; 36 young men, mainly physicians, were financed and trained, usually for 3 or 4 months, with the understanding that they would become available for positions in state and county health work. State boards of health were aided in giving similar field training to 22 of their new directors. This training was given mainly at two field stations in the South supported by the board. Approximately 10 medical students, through the coöperation of the state boards of health and the International Health Board, were given employment last summer with the hope that their interest in public health as a career would be stimulated, and that they would interest their classmates in this field of service. We have been encouraged by the results of the educational program described and expect to enlarge it. It is particularly encouraging to find a grow-

ing tendency among executives to employ no new directors who have not first had at least a few months' training in public health. The same policy should apply to public health nurses.

There continues to exist some difference of opinion among public health authorities as to the most practical method for training personnel. Some advocate initial training in schools of public health, followed by practical field training. Others advocate practical field training and experience preliminary to collegiate courses in public health. Experience will be a safe guide. No doubt both methods will be followed.

Until the schools for health officers and public health nurses can increase the size of their classes, it is probable that a large number of exceptional men and women, whose resources are too limited to permit them to take courses in schools of public health will be encouraged to obtain temporary field training and then given definite work. They will gain knowledge by experience and many of them will develop exceptional capacity and demonstrate aptitude for larger responsibility. Such workers should, by all means, be assisted so far as may be practicable that they may attend schools of public health.

The outlook for public health work in the United States is encouraging. Conditions are steadily improving. The fact that the officers of the American Public Health Association have invited us here to discuss matters of personnel indicates that the Association is seriously concerned regarding its opportunities and responsibilities. There is a tendency that is quite apparent to improve the quality and quantity of health work, and to base compensation and tenure on merit. The public is being educated along sound lines. Young men and young women of the best type are hearing more than formerly of the opportunities for careers in public health. The officers and members of this Association particularly and also of other health organizations can be relied upon to crystallize sentiment as to what constitutes adequate health service; to make provision for attracting suitable personnel; to supply essential training and make the conditions of service reasonably attractive. Our leaders in these developments will, of course, keep in mind that the main object is to protect public health in the United States and to do it on a basis that will be fair, both to the taxpayer and to the public health worker.

INDUSTRIAL PHYSICIANS TO MEET IN PHILADELPHIA

The Tenth Annual Meeting of the American Association of Industrial Physicians and Surgeons, to be held principally under the auspices of the teaching staff of the University of Pennsylvania Medical School, will conduct clinics and lectures at the University Hospital, Philadelphia, May 24–26. The Association's headquarters will be the Hotel Pennsylvania. Papers of special interest to industrial physicians include: "Problems of Industrial Medicine," George Morris Piersol; "X-ray Demonstrations," Dr. Pancost and Dr. Landis; "Industrial Dermatoses," Dr. Stokes; "Industrial Eye Conditions," Dr. Holloway; "Circulatory Disturbances," Dr. Stengel and staff; "Surgical Clinic," Dr. John B. Deaver.

LICENSING HEALTH OFFICERS*

WILL the licensing of health officers raise the standard of public health work?

What is the feasibility of such a legislative act by individual states?

Is a community justified in demanding a trained personnel to guide and protect its health?

These questions were answered in the discussion of the "Wider Application of the New Jersey Plan for Licensing Health Officers" at a general session of the Fifty-fourth Annual Meeting of the Association at St. Louis, Missouri.

Opening the discussion W. A. Evans, M.D., of the *Chicago Tribune,* said:

William A. Evans, M.D.—In the State of Illinois there are more than 2,000 health officers who have had no sort of academic training for the positions they occupy. They are farmers, merchants, hack drivers, undertakers—everything except trained health officers.

Similar conditions, though in different degree, are found in most of the states. Some part of the personnel of every local health department is entirely without preliminary training for the work they do. Men and women who separate themselves, or are separated from health department jobs, either find it difficult to obtain new jobs in health work or, if they go into new lines of work, find it difficult to find places in their new work where their previous experience is of help to them.

Even medical men find the position of part-time health officer hurts them in their practice, and the contacts made while health officer are more harmful than helpful in establishing a practice.

Under all these circumstances, good material hesitates to enter the public health field. A part of the remedy is to make the field attractive by developing security for those who are in it, making it so that they will be secure in their positions during good behavior, and protecting them from competition for positions with untrained people.

I know of no way of doing this that is more logical than the organization of a public health profession, with the spirit of a profession and making use of the same kind of licensing power as has been employed with other professions. For instance, long experience has taught the people that licensing physicians has protected them against incompetent practitioners of medicine. The same experience has taught practitioners of medicine that licensing protects them from competition with untrained, incompetent men. This experience has served to make the career of medicine attractive to men of brains and character. Once having entered on that career, the security which the licensing system gives has kept these men occupied with their chosen career and has prevented them from taking up other lines of work.

The proposal is that the state license the personnel doing public health work. Some would be licensed as health officers; others in such lines as: sanitary engineers, public health nurses, school inspectors, bacteriologists, statisticians and so forth.

There would be no particular legal obstacles. In most cases some legislation would be required. But it would be legislation along well worked out lines—well known to legislators and administrators. The basic requirements could easily be written in the law, or else they could be left to the departments of registration and education as the judgment of the legislators indicated. There is scarcely any need to speak of the constitutionality of such legislation.

If a state can license nurses, physicians and the various other groups now licensed they can license this group or these groups. Furthermore, there would be no constitutional barrier to features of the law which provided that the personnel of state and local health departments should only be drawn from those so licensed.

When we examine the field we find that, subconsciously, effort is being made in this

*Abstract of the discussion at the Third General Session of the Fifty-fourth Annual Meeting of the American Public Health Association at St. Louis, Mo., October 20, 1925.

direction, and has been for a long time. The New Jersey plan, which is the basis for what I am saying, is an effort in that direction. The personnel of the Chicago Health Department has been under civil service for more than 20 years. Civil service is an unconscious striving after the fundamentals of this idea. In Indiana they license school physicians and school nurses. There it is done under the law which provides that none but licensed teachers shall teach. They contend that school physicians and school nurses whose services are paid for out of school funds, and who are a part of the school organization, come under the same law as that which calls for licensing of teachers.

Although conditions generally in Illinois are as bad as I have indicated, there is a law which requires that a health officer chosen under a certain special law must be selected from a list approved by the State Health Director.

THE SPIRIT OF A LICENSING LAW

In New York there is a law which limits appointments to persons approved by the State Health Department, and prohibits removals without the approval of that department. Again, the licensing law! Other similar illustrations could be offered.

An analytical study of the situation shows that we have felt the urge somewhat generally. We have acted on it to a limited degree, but not to the degree necessary to beget that solidarity which security brings.

I have heard two objections to the proposal. One is that we do not want state licenses limited to the boundaries of a state. You will remember that point was raised last year. Some of the inconveniences of the practice of medicine by reason of the limitations under state licensure were related.

Of course, licensing is under the police power of a state and a national licensing of anything can never be without changing the constitution. But so far as the medical license—reciprocity is working reasonably satisfactorily and there is no reason why there should not be reciprocity in licensing health officers, sanitary engineers, school inspectors, sanitary inspectors, visiting nurses and the other workers in the various subdivisions of the public health field.

The other objection which has come to my attention is that the licensing of health officers will provide an illegal method of entry into the practice of medicine. On the one hand, I cannot see how a license, as a license to hold a position as a health officer or health sanitary engineer or bacteriologist will create any legal right to practice curative medicine. On the other hand, as matters now are, the unregulated, uncontrolled, unlicensed public health door is serving as a door into the practice of medicine.

In Chicago there are now irregular schools which give the degree of doctor of public health. These schools are uncontrolled. There is no law covering them. Their graduates holding public health degrees are unlicensed. They are poaching on the preserves of the doctor of medicine. None of them go into public health work, or try to. The reason for the schools, the degree, and the graduation of these men is the creation of a back door into medicine. The way to close that door is to provide for licensing.

The first of these 2 arguments is without weight. The second is an argument for licensing health officers rather than against it. We remember during the war how we trained common soldiers before they were sent to Europe; and how we then trained them further before we put them into the front line. In comparison, think of the more than two thousand wholly untrained men who are in the front lines against communicable diseases in Illinois—this great regiment of wholly untrained health officers! Think to what a great extent the personnel of public health work all over the country is untrained! Think of how little security the trained personnel has and how dependent on security solidarity is! How much need there is for greater security if the field is going to attract brainy, ambitious men—and hold them in preventive medicine to the end of their days!

In summarizing:

1. There is need of better trained men and women in public health work.

2. One reason for present conditions is the lack of security of men in this professional field.

3. One way of regulating this condition is to license all those engaged in public health work and to provide that none shall practice in this field except those who are so licensed.

Chairman C. E. Turner—The committee has asked various sections of the Association which cared to be represented to suggest someone to discuss these topics, and it has asked some of the schools which are giving public health degrees to do so.

Ira V. Hiscock—The need for recruiting men who are adequately trained to undertake important health activities has been well emphasized. This need is impressed upon us repeatedly, as too frequently are we unable to assist city, state, and voluntary organizations in finding proper men or women to fill health positions.

Dr. Evans refers to questions which arise in the minds of young medical men, who are the "cream" of their classes, when they are asked to consider the possibility of entering the public health field. It seems to me highly desirable that information concerning possibilities for a career in public health be presented to medical students or prospective students early in their course. This will give an opportunity for thorough consideration of many factors involved, and also for giving a clearer vision of the public health field in case provision is made for elective courses. It has become more and more apparent that only certain types of medical students are constituted for public health administration work. Those who are adapted for this type of service should, on the other hand, know the possibilities and be given an opportunity. The other groups will doubtless be more valuable in clinical work. Satisfaction with one's job is a fundamental requirement for success.

There is a gratifying tendency which may have some influence in encouraging men to enter the field. All along the line, in the earlier classes in the medical school, the instructors in pathology, pediatrics, and in other medical sciences are themselves giving considerable thought and education along these lines. They are going back beyond the original case which they may have under care to refer to cause and effect from the community standpoint.

At Yale this has had an important effect upon the students themselves so that when they come, in the fourth year class, to pursue their more concentrated training in the principles of public health they already have had some glimpse of the situation. As a department in the Medical School we are attempting among other things, to impart the principles of public health to men who are themselves to be practicing physicians. During the last few years more and more of these men have signified their interest in this field, and I think the training they received in the several departments in the school has been effective in placing them in a more receptive mood than previously to consider public health and its significance.

Raymond S. Patterson—It is unnecessary for me to add to the eloquent arguments for licensure, which Dr. Evans has advanced, but it may be worth while to point out two incidental advantages to a system of state licensing which may not be apparent to all. As he has said, licensure for the medical profession is not a cure-all, neither is the licensing of the health officer a panacea for all the ills of public health administration. Licensure, of itself, is of only questionable value, but it is an instrument by which advances may be made in public hygiene. Its first great advantage, as Dr. Ferrell suggests, is that it may improve local health administration by fostering the establishment of combined rural health districts. State licensure is of greater advantage to rural health administration than it is to urban public health.

As in many states, every borough, town, and township in New Jersey constitutes a sanitary district, and no matter how small, each is authorized by law to carry on a complete health program. The township committee constitutes the board of health, and these men, usually innocent of the rudiments of sanitation and caring little about public health practice, must direct what health work is done in the township. Realizing the need for a health official in the township, the board naturally turns to the temporarily or partially unemployed "handy-man" to carry out its vague ideas on sanitation. Here the licensing requirement steps in. The State Department of Health says to the township committee, "You may not employ this man because he does not possess the requisite qualifications." The township committee—the erstwhile board of health—is faced with a dilemma. Its members want to employ a health official, but they cannot afford to pay one who is qualified for the job. In this frame of mind, they are more receptive to the suggestion that a combined health district be formed, which is permitted, but not required, by law. They cannot be coerced into combining, but they can be induced to join for mutual advantage.

At the present time in New Jersey, through the efforts of the director of health and the state district health officers, such combinations of health districts are in process of negotiation, for the officials of townships and small towns realize that only by combining can they obtain funds sufficient to employ persons competent to pass the licensing examination. Thus, it may be possible to perfect combined health districts, as suggested by Dr. Ferrell, capable of supporting a full-time health staff. That I conceive

to be a very real benefit of the state licensing system as it is in New Jersey.

There is a second benefit gained by state licensing: it stimulates untrained health officials and prospective sanitarians to seek training in sanitary science. Much is said about the training of the health officer, but little or nothing about the subordinate officials. I would urge the provision of better educational opportunities for the health nurse and inspector, for it is they who come in intimate contact with the public and daily have many opportunities to advance or injure health administration—a possibility which receives too little consideration. Dr. Ferrell suggested that subordinate officials should be trained locally. However, from a very limited experience, we believe that the sanitary inspector should have the benefit of some academic training in public hygiene in order that he may do his work more understandingly, with more sympathy and interest, and hence, better. With a system of licensing in effect, the local "handy-man" who aspires to be a sanitary inspector, finding that he cannot pass the examination which is required for a license, may either turn to other work or seek training in public health which would qualify him for the examination.

The State Department of Health and State University of New Jersey offer jointly summer courses in the elements of sanitation, suited to the needs of the sanitary inspector and public health nurse. The state might offer this training to the persons most needing it, but undoubtedly few would take advantage of it. Under the licensing plan and with the examination facing the prospective candidate for positions in health departments, he is readier to take advantage of these educational opportunities which are offered to him.

Based on only one year's experience, we believe that sanitary inspectors can, and will, improve themselves by taking this rudimentary course, for the men who were trained last year are doing better work and have a better appreciation of the principles of sanitation. In urging the extension of the licensing plan, the State Director of Health wishes me to emphasize the fact that without adequate facilities for training, this licensing plan cannot achieve the results which are inherent in it.

Hugh S. Cumming, M.D.—I hope you will allow me to express the gratitude of the United States Public Health Service for the splendid tribute which Dr. Evans has paid its members; and I wish to express my appreciation for the very thoughtful paper that Dr. Ferrell has prepared. He always has a good paper.

As far as the thesis which Dr. Evans advanced, I want to say at the beginning that I believe some system of licensing is not only feasible but is desirable, and it seems to me that the thing needs no further debating. I should think that the Association would take some steps to come to a definite head in this matter. I would not venture to suggest, in detail, what should be done, but I should think it could be much better a national affair, something like the National Board of Examiners for practicing medicine, of which I have the honor to be a member.

Several years ago the Public Health Service invited the heads of the medical schools and sanitariums to meet in Washington, in view of the very evident needs for the proper training of public health officials. A great many men here tonight were at that meeting. A committee was appointed which has met from time to time, and despite pessimism on the part of one or two of its members I think that it has done a great deal of good. Several of the leading schools of the country have attempted and have been successful in starting summer schools chiefly for short courses for public health instruction.

To be perfectly frank, I think all of us have been a little disappointed in the type of individual who has come up for instruction. I do not mean the group as a whole, but the average which has not been very high. That is a fair statement. I believe it is not very difficult for us to find one reason, which Dr. Evans has brought out very strongly, and that is the question of the tenure of office, particularly for that part of the public health profession which requires a doctor's degree.

There is a scarcity of doctors in the country as a whole. This is a subject which has been discussed at every winter meeting of the American Medical Association for a number of years. We find great difficulty in getting men in the Public Health Service, and not only in the Public Health Service but in the Army and Navy. How, then, can you expect the man who has gone through the necessary course of education and has incurred a very great expense to go into the public health field when he has before him such tragedies as we have seen within the last four or five years? Men who have devoted their lives to public health, to save the country hundreds of thou-

sands of lives, have been ruthlessly fired out by some cultist governor or politicians.

That is the pessimistic side. I hope it will be remedied. On the other hand, there has been a very remarkable and gratifying change in the attitude of local communities which are thrown into more immediate contact with their health officers.

If you will pardon personal reference, I have within the past few weeks suggested to several cities, health officers who have been appointed strictly on merit, without any question of political favor. Quite recently at the request of a large city in the south we gave a Civil Service examination for the health officer whom they wished to appoint.

After all, the genius of our government is such that we must expect for some time political changes in the administrative heads of state organizations, some in the federal government and some in the state governments. But to my mind the most important man, from the public health standpoint, is not the administrative head either in the federal or state government but the sanitary policeman who comes in immediate contact with the people, be he the local county or city health officer. I believe gratifying progress is being made in training these men and educating the people to look to something beyond the purely political appointment.

Political appointments are not always unwise, and a local health man who is not a politician is a poor stick. You want a man who is a politician, in the better sense of the word, but not a corrupt politician. I think we are going to get that, and one great step toward the goal would be some organization such as has been spoken of here tonight.

Henry Field Smyth, M.D.—I suppose I represent the school (the University of Pennsylvania) that has been about the longest in the field of attempting to train public health officials. We have no question about the need of trained personnel, and I do not think that any of us here have any argument to put up on that question. We all realize the need of trained personnel but we differ in our opinions as to just what that training should be.

I do not think that any of the schools offering special training to public health workers would argue that they have the ideal system. I know we have not. While we feel that possibly in some ways, we do things a little better than some of the rest of you; we are absolutely sure that in other ways some of the rest of you do things better than we. The real need is not that we may improve our courses, though there is room for improvement in all of them, or that we stimulate more schools to equip themselves to train public health workers, but that we educate people to the need of trained personnel. The schools that are offering public health courses now, I think, could train all of the personnel that has been indicated that we need in this country.

We do not need to be convinced that trained public health workers are of benefit to the community. We need to educate the community to the necessity of having trained health workers. To illustrate: We need to convince the community that they must have more accurate systems of recording vital statistics than those I have found recently in an attempt to get information regarding a transmissible industrial disease.

I circularized the authorities of the various states and was thunderstruck to receive a report from one state giving a list or simply a total of 650 cases of anthrax in 6 years. But the report stated that the health officials were not sure how many of those cases were human anthrax and how many were animal anthrax. It seems almost inconceivable and shows, undoubtedly, the need for trained personnel.

The people in our communities, however, do not realize the need, and I am sorry to say that as far as my observation goes, the medical profession as a whole does not realize the need for trained public health personnel. The medical profession in the local communities as a class is indifferent to the type of health inspector and to his training and often considers him a necessary evil.

We should try more diligently to educate the people and the medical profession to the need of trained personnel. The licensing of public health officers is one method of education. As has been pointed out by Mr. Patterson, it educates the applicant to the value of increasing his efficiency by increasing his knowledge; and it educates the community to the value of licensed public health officials.

If we bring about some system of licensing, naturally it will be imperfect at first, but it will be a step in the right direction.

Lillian A. Hudson, R.N., M.A.—We should maintain a very high standard among the personnel in the public health nursing field for two reasons: First, as Dr. Evans has suggested, the security of the worker, and we

believe the security of the public health nurses, does depend upon the personnel in the field; secondly, the security of the public, and unless we are sending well-prepared nurses into the field, that security is not guaranteed.

In this country, I do not believe we have much to fear from movements to introduce inadequately prepared nurses or inadequately prepared health visitors into the public health service. Sporadic attempts have not met with much success nor have they received public support.

The experience of other countries, of England, for instance, where the health visitor has been tried and is still engaged in some work, has emphasized the need for well-trained public health nurses and legislation has been enacted requiring that the health visitors, from now on, shall have a nurse's training.

Developments in other countries where public health work has been introduced much later than in England, indicate that the same high standard is being adopted. Take, for instance, Brazil, one of the later countries to develop its public health service. When a representative of the Rockefeller Foundation went down there to introduce public health nursing work she found inadequately prepared health visitors already in the field and the leaders interested in getting more health visitors into the field as rapidly as they could.

Experiences like the following, related to me by the director of the Nursing Service, soon convinced the Brazilian health authorities that superficially prepared health visitors would not do. One of these health visitors was assigned to a tuberculosis problem. The father was ill and the mother in the family was very apprehensive lest she and the children contract the disease. The health visitor, with her limited training, did everything she could to assure the mother that if she carried out the isolation suggested she need have no fear of contracting the disease. One day, when a member of the health committee was making a visit with this health visitor in the home, the health visitor's ability was sorely taxed in assuring the mother, and finally she said, "Well, you know very well that in the end only God can give you tuberculosis." Consequently the mother relaxed her isolation precautions.

I do not believe we need to consider further the need for well-trained personnel. We will take that for granted.

I should like to say a word or two about the possibility of our meeting the increasing demands of an expanding service for well-qualified workers. At first, Dr. Ferrell's figures were very alarming, but after I did a little arithmetic I was more assured than I have been for some little time.

Within the last 20 years we have placed 12,000 nurses in the field, averaging 600 a year. Dr. Ferrell suggested that to reach a fair or a minimum standard for the whole country we would need to place 900 a year for the next 10 years, or 450 a year for the next 20 years. If we continued at the rate we have been going for the last 20 years we would reach this minimum in 15 years. And if we attempted to reach what I believe would be considered the maximum standard—1 nurse to every 2,000 population—we could do that in the next 45 years if we continued at the rate we have maintained in the last 20 years. So the increasing demand does not seem so serious to me as it first appeared.

It is only about 14 years since we opened the first course in public health nursing in this country. Now we have courses in at least 10 or 12 universities and the number of students is steadily increasing. There has been a rapid increase in the number registered in the last 5 years in our own Department of Nursing Education at Teachers College, Columbia University, which has a division of public health nursing. We have 125 public health nurses registered for this year. Some of them are taking part-time programs. In addition to the students we have during the regular year, we have a large group (usually nurses from the field) who come in for a 6 weeks' summer session. This group registers, as a rule, between 125 and 140 students.

According to statistics that were gathered by the National Organization for Public Health Nursing last year, there are as many students registered in other courses as at Teachers College; that is, the total of all students in other courses equals ours. So there are 400 to 500 students a year in the public health nursing courses.

While speaking of the development of our work, I want to pay a tribute to the leaders in nursing education, who have appreciated the importance of special preparation for public health nursing. Miss Nutting, who has for many years been the head of our department, realized soon after the department was opened that special preparation was needed for public health nurses and, through the generosity of one of the very early members of this associ-

ation an endowment was provided for our public health work. The public health nursing group at this conference is very happy that we have Mrs. Helen Hartley Jenkins with us at this meeting, whose gift made the work in this first postgraduate course possible.

May I add that we are not yet satisfied with the work we are doing in our courses. We are not satisfied with the basic training that our students are getting in the hospitals; neither are our administrators nor our instructors in schools of nursing satisfied with it.

One of the most encouraging developments is the work being done by our League Committee on Nursing Education in revising the standard curriculum. Emphasis is placed upon the preventive, educational, economic and social aspects of health work, throughout the basic course. Recent graduates from some of our best training schools have already had the advantages of such instruction and need but little postgraduate preparation to qualify as good public health field nurses.

As the basic course is reorganized in larger numbers of schools it will be more possible for us to meet the needs suggested by Dr. Ferrell.

In regard to licensing, we are fully agreed that it is needed. Although I know I am not supposed to discuss the medical aspects of these papers I should say, in closing, that public health nurses are greatly encouraged to know of the plans to provide for the licensing of public health officers.

Thomas G. Hull—The thing that is troubling the Laboratory Section is lack of definitions. We do not know just what really constitutes a laboratory. Perhaps we know what a public health laboratory is, but we have a large number of hospital laboratories, chiefly interested in clinical work, but which are still doing a lot of public health work. Then we have the so-called commercial laboratories, which undertake almost anything under the sun.

Further, we do not know just what a laboratory worker is. We have bacteriologists and chemists and pathologists, and when we get all three of these highly trained experts together, we have a very efficient organization. However, one cannot be substituted for another, nor the definition of what makes one will not fit another; and when one expert goes out of his field and tries to do the work of another, he may be very much out of place.

We have different grades of technicians in each one of these three types. We have so-called laboratory helpers. In one laboratory, the laboratory helper will wash the dishes, and in another laboratory he will run the Wassermann tests. We have juniors and seniors in each grade, and it is very difficult to know just where in the scale to put one of these individuals. We have a great many girls who go into doctors' offices and become proficient at making blood counts and urine analyses. Perhaps they will pick up a smattering of knowledge concerning smear examinations and thus satisfy the wants of a particular group of physicians. Each one of these physicians will write a very flowery recommendation concerning this young girl's ability as a laboratory worker; then these girls come over to our public health laboratory and want a salary of $250 a month, because of their flowery recommendations as laboratory workers, when, as a matter of fact, they cannot even make our culture medium.

There is apparently an unconscious need of some kind of licensing of laboratorians. Two states have attempted to initiate legislation to this end, but in each instance a storm of protest arose and the matter was dropped. However, from the very fact that half a dozen state health departments are issuing certificates to laboratories and a half dozen national organizations, such as this, are studying the problem of controlling laboratories and laboratory workers, it is very apparent that the problem is great.

Edwin W. Kopf—The Vital Statistics Section has had under consideration the technical education of vital statisticians for more than 3 years. That work was initiated in coöperation with the American Statistical Association.* The committee of the section has presented three reports and probably the most satisfactory one is the report read by Dr. Deacon this morning. We were able, for the first time, to agree upon an outline of vital statistics training.

EDUCATIONAL STANDARDS FOR VITAL STATISTICIANS

The Committee on Educational and Professional Standards, of this section, felt that in public health work, the schools and the section could outline courses of instruction in vital statistics, first, for health officers or the administrative heads; second, for registrars and

* See: *Journal of the American Statistical Association*, Supplement, June, 1926, for a digest of papers on the education of statisticians.

their assistants; third, for persons interested in vital statistics but not actually engaged in public health and registration service—economists, sociologists, students of jurisprudence, actuaries, administrative statisticians in insurance service, teachers of generalized statistics and of economics and sociology.

We must bear in mind this third group because public health services have benefited not only from the vital statistics work of health officers and registrars, but also from the work performed by the groups external to official public health work. As an example, I need only to refer to the United States Life Tables, prepared by Professor J. W. Glover, an insurance actuary, in coöperation with the Bureau of the Census at Washington. One can go back in vital statistics history for several centuries and find numerous other examples of distinguished service to public health on the part of these consumers of the registrar's published results—Graunt, Petty, Price, Morgan, Babbage, etc.

So, in drafting the section's educational program, we have to reconcile at least three points of view: To coöperate with Professor Turner's committee in respect to the requirements and the outline of vital statistics training for health officers and administrators, for registrars and their assistants; to coöperate with the American Statistical Association's Committee on Educational and Professional Standards in developing its program for general statisticians; to place before the section what we can gain from conference with economists and sociologists and with the actuaries and statisticians in general service.

LICENSURE VERSUS CERTIFICATION

Vital statisticians may be interested in a successful procedure which has been in force in England since 1848 and in the United States since 1889. In the development of the insurance actuary, the Institute of Actuaries of Great Britain, the Actuarial Society of America, and the American Institute of Actuaries have outlined syllabi of subjects which they deem pertinent to their respective fields, have conducted educational work, and examinations, and have certified proficiency in the subjects of the respective syllabi.

Three years ago it was suggested to the Vital Statistics Section that possibly there was no point of public interest in the licensing of statisticians by the state and that perhaps the aim of state certification would be achieved if the section could outline a syllabus of instruction in vital statistics and if it could certify by an examination system the competence of a person who took its course of study. The syllabus and examination plan were disapproved 3 years ago by the members of the section committee, not on the ground of any defect in the plan but because we felt the section was not yet ready for the procedure. We felt that there was not yet a definite conception of what a public health statistician should be. It might be well for the section to take up this thought again, bearing in mind the success of the actuaries with a similar procedure.

So your committee in coöperation with Professor Turner's general committee will endeavor, first, to outline what constitutes a course of reasonable scope in descriptive vital statistics, in elementary statistical logic for health officers, in registration and in the history of vital statistics, in practical office procedure and in tabulation and publication. We feel if we do that much this coming year, we shall have performed a distinct service to the men directly employed in health service. It may be possible also for your committee to stimulate correspondence courses in vital statistics for the benefit of the young people now employed in public health statistical service.

BROADENING THE SCOPE OF SERVICE TO PUBLIC HEALTH

Yesterday, Dr. Sydenstricker pointed out the need for an appreciation of statistical logic in the public health field. He suggested that registration had gone along very well in the state and city services, that an adequate amount of data was being reported to the Federal Bureau of the Census, and that the next step seemed to be the development of statistical logic in the public health field. That statistical logic would apply in the analysis of public health performance. It would be applied to test historical and contemporary procedures in public health, especially the newer ancillaries such as analytical epidemiology, public health climatology, industrial hygiene, nursing, child hygiene, tuberculosis control, health demonstrations, etc. This logic, when developed, may also serve the laboratory group in a manner suggested by Mr. Milton Stein of Cleveland. In fact, the adequately trained vital statistician of the future will be of service to all branches of public health practice whenever quantitative data are assembled and screened for essential truth. The outlook therefore justifies the con-

tinued activity of the section in searching for standards which will meet with the approval of the several groups having a direct interest in public health evidences.

J. C. Geiger, M.D.—I do not think you can make a public health administrator either through the medium of a college or through the medium of a license. Some of the professors of public health administration I have known, have never handled a health department.

The question of licensing doctors with public health training or experience as public health administrators would appear to be a somewhat unnecessary procedure, as doctors are already licensed. Some physicians, who have moved from state to state, have several licenses. Likewise, nurses are licensed. Who else are you going to license? Perhaps the sanitary engineers.

I realize that several universities are giving degrees in public health. It is also realized that teaching preventive medicine in medical schools is decidedly important and not always carried out to the advantage of the student.

Very recently, in the city of Chicago, thanks to the foresight of the Commissioner of Health, Dr. Herman N. Bundesen, we have taken over almost as a health department affair, the teaching of preventive medicine to medical students in the four Class "A" medical schools of the city of Chicago. In fact, I think the Department of Health, in coöperation with the University of Chicago, Illinois, Northwestern and Loyola, is running the greatest experiment in medical teaching in the United State to-day. The medical schools of the University of Chicago, Loyola University, University of Illinois and Northwestern University have allowed us to take their senior medical class, and have made it mandatory on that particular class that they, in small sections, must spend at least one week in the Municipal Contagious Disease Hospital. These students are to learn the diagnosis and treatment of such diseases as measles, scarlet fever, whooping cough, smallpox and diphtheria, along with the practical application of measures to prevent cross infections.

How many of us who have come out of medical schools saw there a case of smallpox or scarlet fever? Yet it is remarkable that when you pick up some of the magazines, you see the epidemiology and even treatment of scarlet fever written by a man who is not a medical man. You might just as well have obstetrics written by an engineer.

The foresight of the Commissioner of Health in offering such facilities to teach preventive medicine could be extended to give a course to those medical students who are interested in public health, and perhaps make their interne year a year in a department of health of the city of Chicago. That is where they are going to get the experience in administrative public health and not in the medical school, or school of public health in which there is no connection at all with public health departments, either city or state.

I mean that seriously, but I am only expressing my opinion. Licensing a public health official, however, will not make an administrative officer and neither will the best of education make administrative officers. Unfortunately, the best administrative officers are born and not made, and it is only experience that makes some of us "practical" administrative officers.

Frankly, as far as the problem of public health education is concerned, I have felt that, primarily, in training a man for that particular profession, you should start at least from the laboratory. Certainly, persons who are classified as public health administrators without some definite medical training are to me like a ship without a rudder.

John Sundwall, Ph.D., M.D.—The problem of licensing public health workers and administrators is one to which I have given some thought in recent years. Assuredly, individuals who are responsible in the largest measure for the health of a community should be licensed. The public has the right to demand the very highest qualifications from the man who is to direct its public health activities. Licensure is the American method for determining these qualifications.

Licensing of public health workers and administrators, at present will prove to be a complicated and difficult process. In fact, I am not at all clear as to how this can be done. Attention has already been called to the licensing of physicians and dentists. This is relatively an easy matter in view of the fact that those who apply for licensure in medicine or in dentistry, have had similar training in the fundamental sciences making up medicine and dentistry. Speaking of medicine in particular, every candidate for licensure has had, on the whole, equivalent training in anatomy, physiology, biological chemistry, pharmacology, bacteriology, pathology, medicine, surgery and obstetrics. The candidate is examined in these subjects.

If he passes the examination he is permitted to practice medicine, or any of its specialties. The licensing board is concerned only with the basic or fundamental training of the applicant and not with the particular specialty in medicine which he expects to or may practice.

In public health the problem is quite the reverse. One may say that the profession, on the whole, is made up of a number of specialties and specialists. Individuals enter the public health profession directly from these specialties. They have had no fundamental training in common. Among specialists making up the public health profession, one may name laboratorians, statisticians, public health educators, sanitary engineers, medico-social workers, physicians, nurses, biologists, sociologists and psychologists. Now each of these has entered the public health profession directly because of his interest and because of the need for his special service in public health. No common general public health licensing examination can be given this group for the simple reason that no two of these specialists have had similar fundamental training. I do not feel that it is desirable or practical to establish machineries for licensing each of these specialties. Think of the numerous and complicated boards that would have to be set up in order to license each specialty in public health.

I do not believe that we will ever have a strong and united profession of public health, comparable let us say, to the American Medical Association, until all public health practitioners have been trained, more or less in common, in certain fundamental sciences making up public health.

Before concerning ourselves too much with the problem of licensing public health practitioners, let us first attempt to get together on some basic training that should be common to all who anticipate public health as a career. I am clear as to what this minimum training should be. As I view it, it should include the following subjects: bacteriology, medical zoölogy, physiological hygiene, communicable diseases and community hygiene, sanitary engineering, sociology and community problems, vital statistics, psychology and mental hygiene, and municipal government. Now, if all entering the public health profession have had this training in common then we can look forward to a united profession and to licensure.

Of great concern to us who are engaged in the training of public health practitioners, is the problem of degrees in public health. Shall we limit the D.P.H. degree to those who have completed curricula in medicine? It was my reaction, at one time, that the D.P.H. should be given only to those who possessed the M.D. degree. To-day, I find that I am not at all certain in regard to this matter. There are a number of specialties in public health which do not require a preliminary training in medicine. For example, public health needs expert laboratorians, statisticians, sanitary engineers, medico-social workers, nutritional workers, and public health educators. Moreover, there is the public health nurse who, after all, perhaps, is the most important functionaire in public health. Often representatives of each of these specialties enroll in the Graduate School at the University of Michigan and do from 2 to 3 years of directed work in public health. This graduate work is built upon preliminary required adequate training in biology, chemistry, physics, bacteriology, sociology and psychology. These students want degrees in public health. They earn them. Are they not entitled to the professional degree of Doctor of Public Health?

Why not confer upon these graduate students either the Ph.D. or D.Sc. degree, some may ask? My answer would be that these degrees should be conferred only upon those who have spent 3 or more years in the pursual of and research in one major subject. These degrees should be regarded as strictly academic degrees.

The D.P.H. degree, on the other hand, is a professional degree. The graduate student who has pursued for 2 or 3 years a well balanced program of study in public health with adequate time and facilities to specialize along his chosen field should prove to be of greater value to the practice of public health than one who has specialized in one science alone such as the candidate for the Ph.D. or D.Sc.

I believe we are all agreed that it is highly desirable for the public health administrator to be trained in medicine as preliminary to his training in public health. This is especially desirable for the health officer of small communities where he must perform many functions. To make the medical degree a requisite to all public health administration is quite another question. Administrators cannot be made entirely. They are in a large measure born with some of the most essential qualifications.

All the training possible will not make successful public health administrators out of

many physicians. Furthermore, many holders of the D.P.H. degrees who possess no degrees in medicine become successful administrators of public health. My experience as a teacher of public health is leading me more and more to the conclusion that we cannot, in a strict sense, train public health administrators. All that we can do is to show our students the field of public health, the various specialties, their relative values, and the interrelationship of the various specialties and agencies making up effective public health work. The future, in actual practice, will reveal the genuine administrator.

We must be very careful not to limit the field which is to produce successful administrators of public health. There is great danger in limitations and restrictions. Should not opportunities for administration be open to all the specialties in public health providing they have had a broad training and experience in public health?

To summarize, licensure of public health practitioners, at present, will prove to be a difficult and complicated problem. First, we must look forward to a more or less standard basic training for all who anticipate public health as a career. This standard training need not be extensive or severe. It will give unity to the profession of public health. After we are more or less agreed on what should constitute this basic training and provide it, then we can go on with our plans for licensing public health practitioners.

ITINERANT CONFERENCES—STANDARDS OF EXAMINATION*

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ITINERANT child health conferences are generally understood to be conferences held at successive places, the stay at each place being comparatively short, with no definite arrangement for return to that given place in the future. These conferences can be held in a healthmobile or in a suitable room in a school house or other building. They should always be attended by the local nurse and conducted by a physician of considerable experience.

The itinerant conference differs in certain particulars from a permanent child health conference. In the latter, usually at the same hour each week or twice a month, a definite, standardized child health conference is held. The conferences conducted at such frequent intervals can and should assume responsibility for the routine care of children attending them. The object of the itinerant conference, on the other hand, is to a large extent to arouse the community to the importance of such examinations—not primarily to study the children completely, but to examine thoroughly a great many in the community who are not now under satisfactory medical supervision. Such a conference thrives best in a new territory, seeks children not at present being seen regularly by their physicians, gives them the "once over," urges parents to take them to their own family physicians, and at the same time brings to the physician's attention the advisability of supervising well children.

The need for this kind of service is very real, for at present in the rural districts of our state a large number, certainly the majority of children, are now growing up after infancy without adequate medical supervision. We need to meet and conquer the inertia of two groups. One consists of the parents.

* Read at the Third Annual Conference of State Directors of the Administration of the Act of Congress of November 23, 1921, for the Promotion of the Welfare and Hygiene of Maternity and Infancy, held in Washington, D. C., January 11–13, 1926.

This is largely a problem of information. Most parents do not now understand how much their children are suffering through neglect of medical oversight. The other group whose inertia must be overcome consists of the physicians. Here we meet a real obstacle. The whole of the physician's training and experience lie in the field of diagnosis and treatment, and not in the field of prevention; and for the physician to attempt to persuade people who think themselves well to come to him at intervals would be misconstrued in many instances as an attempt to "drum up trade." Just at this point the sympathetic health officer can be of real service. He has no axe to grind, is not in any sense benefited, and can do his utmost to persuade the laity to demand from the medical profession protective care while they are well. In overcoming this inertia in both directions the itinerant conference can play an important rôle. Parents are invited to come with their children. They can give the history briefly, see the examination, and then have a few minutes alone with the physician, during which time he can particularize concerning the specific needs of the individual child.

A caution should be given here: In making the examination the position of the family physician must be constantly borne in mind. A diagnosis, which perhaps the family doctor has failed to give the mother must not be made to her; if possible, it must be made only to the physician himself. Nothing should be done to undermine the standing of the physician upon whom the whole family must depend in case of sickness, and everything must be done to strengthen his hands.

Local physicians are invited by letter to attend these conferences and see the work carried on. They are informed also that the physician conducting the conference can serve as consultant for any case that they may bring in person, or send with a note; and after the conference is over each local physician receives a personal note from the bureau with an outline of the result of the examination. The nurse assisting with the conference receives a copy of this note so that she can use it to urge cases to return to their own physicians. It is hoped that the physician will have the note on his desk when the patient consults him. At these conferences it should be intimated that diagnoses depending upon blood or laboratory tests are not attempted. The conference is a kind of screening process, by which the abnormal or handicapped children are detected and put in the way of having these handicaps removed.

We understand, of course, that to refer a handicapped child to a general practitioner may not always be of great assistance; but we are thoroughly convinced that in the long run this is the best procedure, as the standards in hygiene in any community can never be lifted higher than those which the physicians can be persuaded to apply themselves. The bureau works with and for the physician; it aids him, if necessary, to obtain a hospital bed for his patient; assists him also to obtain services of specialists when required. One should be able in such conferences to determine:

1. The nutrition of the patient, using the height and weight cards as rough indices, remembering always that the diagnosis of nutrition rests upon the skillful weighing of a number of factors and that this is one of the most difficult diagnoses to make except when malnutrition or overnutrition is marked.

2. The presence or absence of rickets. Here again judgment in incipient cases is difficult.

3. Whether there is disease of the heart.

4. Whether there is disease of the lungs.

5. Whether there is disease of the abdomen (including an estimate of the size of liver and spleen).

6. The position of the urinary bladder.

7. The presence or absence of hernia, phimosis, abnormality of genitalia.

8. The condition of the nose and throat. In cases of obstruction, whether there are adenoids or hypertrophied tonsils, enlarged turbinate bones, or deflected nasal septum.

9. The condition of the teeth. This is the more important because it is often an index of the social habits of the family. Parents, as

well as the children themselves, can be graded on children's teeth.

10. The condition of the eyes and ears in older children.

11. Vision and hearing. Rough tests for this may profitably be done in the preschool year.

12. The state of the nervous system and the child's mental age.

13. Whether the child has been vaccinated, and whether he has had the toxin-antitoxin treatment, should be recorded.

If, as a preliminary to this brief examination, the nurse or her assistant has recorded a short history of the child, including a record of the character of its birth, its feeding history, any intercurrent diseases, its appetite, amount of sleep, and condition of the bowels, the examining physician has sufficient data to confer helpfully with both the mother and the family physician. It goes without saying that the more experience and skill the examining physician possesses, the more he can make out of an itinerant conference.

The permanent value of such a conference depends largely upon the tact of the physician conducting it; upon whether or not he is able to "sell" the idea of good health to the parent and to the family physician. It depends in almost equal measure upon the efficiency of the service of the public health nurse. Upon her one relies not only in advertising the conference before it is held, but also in assisting parents to take their children to their physicians to carry out the corrective measures suggested.

ELIMINATING A SOURCE OF ERROR IN THE LABORATORY DIAGNOSIS OF RABIES

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THE ENORMOUS INCREASE in the number of rabid animals in many sections of the United States and the attendant publicity given the disease itself have made the examination of suspected brains a matter of great importance in the public health laboratories of regions so affected.

Heads of dogs and other animals often arrive at the laboratory showing a marked hemorrhage about and through the brain tissue, as the result of a blow or a shot.

The methods employed in the examination for Negri bodies by the impression and smear method involve the use of a fixative. They have, therefore, one common disadvantage, *i.e.*, the fixation of the red blood cells in or upon the brain tissue. These blood cells when present in abundance render the subsequent microscopic examination a difficult task by obscuring much of the tissue structure. Even in small numbers they may cause confusion through the similarity between their staining properties and those of the Negri bodies when stained with a mixture of methylene blue and fuchsin. In many instances a large nerve cell may be superimposed upon a red cell, causing an inexperienced observer to mistake the latter for a Negri body. Even an experienced observer may hesitate to disregard this possibility because of the extreme gravity of the disease.

A method for the elimination of red blood cells as potential sources of error

in the laboratory diagnosis of rabies is desirable for the foregoing reasons. Description of such a method follows:

DESCRIPTION OF METHOD

Dissect out the brain. Make impressions and smears from Ammon's horn, cerebellum, and cerebral cortex in the usual manner. The layer of tissue upon each slide should be made as thin as possible, for a thick layer is more easily washed or rubbed away with subsequent treatment.

Place the slides in the following solution:

Methyl alcohol (C. P.)	98 c.c.
Glacial acetic acid	2 c.c.

Allow the slides to stand in this solution for 3 minutes. Dry quickly over a flame, taking care to avoid intense heating. Transfer the slides to a 10 per cent aqueous solution of potassium carbonate and allow them to stand thus for 5 minutes. Wash in a very gentle stream of tap water. Dry by gently blotting them with smooth absorbent paper. Care must be taken not to wash or rub away any of the tissue adhering to the slides.

Flood the slides with the following dye mixture:

Methylene blue (saturated aqueous sol.)	3 drops
Basic fuchsin (saturated alcoholic sol.)	2 drops
Tap water	20 c.c.

Warm the slides by passing them once through a flame. Allow them to stain for not more than 1 minute. The staining time will depend upon the purity and solubility of the dyes used.

Wash the slides in a stream of tap water, dry, and examine for Negri bodies.

Any stain which will demonstrate the presence of Negri bodies may be used. The foregoing stain, which is in use in many laboratories, has, however, given the most consistent results with this method. This stain should be reddish-blue in color; the red dye should not dominate the blue. It must be kept at icebox temperature when not in use. It should never be used after standing for more than 24 hours, as it deteriorates rapidly.

DISCUSSION

The attempt was made to remove the red cells by the use of acetic acid after the slides had been fixed in C. P. methyl alcohol. The results so obtained were variable.

By employing a mixture of the two substances the complete destruction of the red cells is effected simultaneously with the fixation of the essential parts of the brain tissue.

The use of acetic acid produces a change in the staining properties of the tissue, chiefly characterized by a diminished affinity for the dyes used. Other acids have this same general effect upon the tissue, so that it may be ascribed to a change in hydrogen ion concentration of the tissue proteins. The carbonate solution is employed to offset this factor by a process of neutralization.

If the large nerve cells are a clear blue and the matrix a dull red, it is an indication of excessive treatment with the acid-fixative or of insufficient treatment with the carbonate solution. Negri bodies are difficult to perceive under such conditions as they are stained but faintly.

A slide properly prepared by this method should show the large nerve cells with reddish-blue cytoplasm and deep blue nuclei in a matrix of brilliant red. Negri bodies, if present, will then be a characteristic strawberry red with typical granular structure. Unstained, vacuole-like areas will be perceived where red blood cells were located.

SUMMARY

1. Attention is called to the fact that red blood cells in or upon the brain tissue are potential sources of error in the laboratory diagnosis of rabies.

2. A method for the destruction of these blood cells is set forth in detail.

3. Notes and explanations are appended in a discussion.

PUBLIC HEALTH TRAINING*

THE FIRST SECTION of this report presents the results of a special study of the professional requirements for local health officers in the United States. The second section presents data concerning the number of students who were studying public health during 1924–1925. The third section presents a statement of the current and contemplated activities of the committee.

THE BASIS OF APPOINTMENT FOR LOCAL HEALTH OFFICERS

Civil Service

By means of questionnaires and correspondence with civil service bodies and state health departments, the committee has gathered data as to the extent to which local health officers and employes are appointed under civil service or merit laws. There are ten states in the Union with civil service laws. These are California, Colorado, Illinois, Kansas, Massachusetts, Maryland, New Jersey, New York, Ohio and Wisconsin. In addition there are about two hundred cities with some form of civil service laws. (Canada has a federal civil service commission and five provincial commissions.)

No state has a general requirement that local health officers shall be appointed through civil service. New Jersey is the only state in which *any* local health officers are appointed through state civil service. Here health officers and all county municipal employes are appointed through civil service in the 15 local jurisdictions which have accepted civil service by referendum vote.

In Massachusetts and possibly one or two other states and in many individual cities local health department *employes* (but not the health officer), are under civil service appointment.

Professional Qualifications

Only in the states of Georgia, Kentucky, Mississippi, New Jersey and New York is the local health officer required to possess special training in public health or to demonstrate proficiency by an examination.

In the following 17 states no specifications are laid down for the training of local health officers: Arkansas, Colorado, Delaware, Florida, Idaho, Illinois (except in organized public health districts where he must be approved by the state health department), Massachusetts, Missouri, New Hampshire, North Carolina, Ohio, Oklahoma, Pennsylvania, Rhode Island, Vermont, Virginia and Wyoming.

Local health officers are required to be physicians but there is no requirement for training or experience in sanitation or public health administration in the states of Arizona, Georgia, Indiana, Iowa, Kentucky, Maryland, Michigan, Minnesota, Mississippi, Montana, Nebraska, New York, North Dakota, Oregon, South Dakota, Tennessee, Texas, Washington, West Virginia, Wisconsin and Utah. This requirement applies to county health officers in Arkansas, Missouri and Oklahoma. (Replies from several state health officers indicate that it is frequently impossible to meet this requirement or that the law requires a physician "when available.")

Maine and New Mexico require special training in public health for a full time local health officer unless the man is a physician. In New Mexico county health

* Report of the Committee on the Standardization of Public Health Training (changed in October, 1925, to the Committee on Training and Personnel), presented to and accepted by the Governing Council of the American Public Health Association at the Fifty-fourth Annual Meeting at St. Louis, Mo., October 18, 1925.

officers receiving more than $1,800 *must* have had special experience and training. In California county health officers must be graduates in medicine or engineering.

In Nevada health officers must be graduates of reputable colleges and familiar with hygiene, sanitation and contagious diseases. In Connecticut the *county* health officer is an attorney at law but the *local* health officer must be "learned in sanitary science."

Relationship to State Health Department

In 26 states the state health department exercises no authority over the qualifications of local health officers. In the other states, the appointment must be approved by the state health department. In many cases this merely means that the state health department shall see that the professional requirement stipulated by law and mentioned above has been met. In a few states the appointments, except in large cities, are actually made by the state department of health.

PROFESSIONAL COURSES IN PUBLIC HEALTH

The committee presents, herewith, the data for the last academic year indicating the number of students taking courses leading to degrees in public health. Table I indicates the institutions offering such degrees, the number of candidates, and the number of degrees granted. These data have been obtained by correspondence, and we have tried to make them complete. Table II indicates the total number of the various public health degrees granted in the United States and Canada during 1925.

These data do not include figures for the training of public health nurses because these statistics are compiled by the nursing organization. Neither has the committee made an attempt to determine the number of correspondence courses conducted by state health departments or other agencies during 1925. Two of the schools reporting public health degrees mention a relationship to correspondence courses. The Ohio State University reports that the State Department of Health conducted its correspondence course during the past year with 130 registrants, and granted 35 certificates. The University of Georgia reports that graduates of the medical school who elect to go into public health are given correspondence courses combined with personal conferences. Three graduates entered this field in 1925.

The University of Minnesota and the University of Wisconsin report that they have practically discontinued training in public health since the establishment of the heavily endowed schools of public health in the east and that they advise candidates to go to these schools.

CONTINUING AND FUTURE ACTIVITIES

The dinner conference and discussion at the St. Louis meeting provided an opportunity for discussing the need of personnel and the feasibility of some licensing plan like that carried out in New Jersey. It is recognized that both of these problems are vitally connected with public health training. A knowledge of professional opportunity is the one factor which can be relied upon to develop interest in professional training.

There is an obvious need for public health personnel and difficulty in securing men and women of adequate training. Many positions which should be filled by trained sanitarians are now filled by untrained and inexperienced people. At present we have no exact data upon these points: How great is the need for personnel? What are the sources from which professional sanitarians are drawn? How can we interest a greater number of men and women in professional training? How many *are* specially trained? What are the salaries available? How many trained or experienced sanitarians are leaving the public health field and why? What is the present relationship between supply and demand and how is it affected by tenure of office, salaries and existing legislation?

TABLE I

NUMBER OF STUDENTS ENROLLED AND DEGREES CONFERRED IN COURSES REQUIRING AT LEAST ONE YEAR OF RESIDENCE AND LEADING TO A PUBLIC HEALTH CAREER IN 1925

School	Degree	Number enrolled 1924–25	No. degrees conferred 1925
University of California	Dr.P.H.	3	5
	Ph.D. in H.	1	0
	A.B. in H.	13	0
Detroit College of Medicine and Surgery	No data received		
University of Georgia	M.S. in P.H.	4	4
	D.P.H.	7	7
Harvard School of Public Health	Dr.P.H.	5	5
	M.P.H.	4	3
University of Iowa	No data received		
Johns Hopkins University School of Public Health	Dr.P.H.	24	16
	Sc.D. in H.	35	13
	C.P.H.	14	16
	B.S. in H.	8	4
University of Louisville	(Health School Closed)		
Massachusetts Institute of Technology	Dr.P.H.	1	0
	C.P.H.	5	0
	Ph.D.	2	0
	S.B. in P.H.	23	2
University of Michigan	M.A.	5	2
	D.P.H.	3	2
University of New York and Bellevue Hospital Medical School	No data received		
Ohio State University	M.S. in P.H.	0	0
University of Pennsylvania School of Hygiene and Public Health	Dr.P.H.	2	1
Yale University	Dr.P.H.	3	1
	Ph.D.	18	6
	C.P.H.	3	2
	M.S.	1	0
L'University Laval	No data received		
McGill University	D.P.H.	2	2
University of Montreal	No data received		
Queens University	No data received		
University of Toronto	M.S. in P.H.	0	0
	D.P.H.	8	6
	Ph.D.	1	0
University of Western Ontario	No data received		
	Total	195	97

The need of information regarding the recruiting of sanitarians and the close relationship between this problem and public health training was laid before the executive board which has approved an addition to the functions of this committee. With this plan in mind the committee with the approval of the Governing Council changes its name to the Committee on Training and Personnel.

The answer to the above questions demands a careful study of existing conditions. The committee recommends an attempt to secure funds from outside the Association adequate to make possible such an investigation. The committee desires authority to increase its number by the appointment of advisory members who shall be approved by the President of the Association. It suggests also the desirability of securing information concerning the experience of educators in developing professional standards in school administration.

Further study of the feasibility of some licensing plan with an attempt on the part of the committee to present a practical procedure for the consideration of the Association is also recommended. Thirty-three states now accept the certificate of the national board for the licensing of physicians. Certain states use the certificating plan in the approval of public health nurses. The Royal Sanitary Institute has a plan for issuing certificates. These procedures and similar ones in other professional bodies should be laid before the Association together with a statement of the possibility and

TABLE II

THE NUMBER OF DEGREES IN PUBLIC HEALTH GRANTED IN U. S. AND CANADA IN 1924

Doctor of Public Health	37
Certificate in Public Health	18
Diploma in Public Health	8
Doctor of Science in Hygiene	13
Doctor of Philosophy	6
Master of Science in Public Health	4
Master of Public Health	3
Master of Arts in Hygiene	2
Bachelor of Science in Hygiene	6
Bachelor of Public Health	0
Bachelor of Arts in Hygiene	0
	97

feasibility of such a plan in the public health field. The question of the advisability of the A.P.H.A. giving qualifying examinations to health officers and others has already been referred to this committee by the Governing Council.*

Following the study of existing requirements it seems desirable that the committee shall suggest *minimum* requirements for the course leading to each degree. These suggestions will not embody a plan for utilizing the full time of the student but rather will suggest the essentials which shall be given to every student with the understanding that additional elective studies are expected. The committee is asking each section of the Association which represents a specialized type of training to place upon its section representative in this committee or upon a section committee of which he should be a member, the responsibility for preparing such a statement of minimum essentials in the professional field involved and suggestions as to the professional subjects in that field demanded in the training of the health officer. These requirements when completed to the satisfaction of the committees will be laid before the Association for approval.

To avoid confusion in the minds of our members and others, it seems desirable to make it clear that the committee centers its activity upon the professional preparation for public health work. It is interested in but not primarily concerned with the teaching of hygiene to people who are not to become sanitarians. It is in accord with the Council on Medical Education and the Association of Medical Colleges in endorsing a training for clinicians which shall introduce the preventive viewpoint throughout the medical curriculum rather than limiting it to a specific course in preventive medicine; and in endorsing the continuation of a short course in medical schools specifically designed to inform medical students concerning the organization, aims, purposes and general activities of public health work and the relationship of these activities to the practicing physician.

The development and supervision of these courses, however, lies within the province of medical education. Medical schools and medical and public health practice both here and abroad have drawn a sharp line of distinction between the training in hygiene and preventive medicine provided for the clinician and the special training in public health provided in schools of public health and graduate schools for the training of the professional sanitarian. The usual undergraduate course in medicine does not adequately equip the physician for public health work. It is his graduate training in public health, and the training of the various other types of professional sanitarians with which this committee is directly concerned.

C. E. TURNER, *Chairman*
J. G. FITZGERALD
W. H. PARK
W. H. WELCH
C.-E. A. WINSLOW

Section Representatives
C.-E. A. WINSLOW, Public Health Administration
C. C. YOUNG, Laboratory
W. J. V. DEACON, Vital Statistics
J. H. GREGORY, Public Health Engineering
E. R. HAYHURST, Industrial Hygiene
H. W. REDFIELD, Food and Drugs
H. H. MITCHELL, Child Hygiene
E. G. ROUTZAHN, Health Education and Publicity
G. HODGMAN, Nursing.

* NOTE: At a meeting of the committee in St. Louis, held subsequent to the presentation of the above report, the committee placed itself on record as being in favor of a system of licensing or examination within states for those who would hold office as health officers or public health administrators. This proposition has not been presented to the Association.

WHY NEW MEXICO NURSES COOPERATE IN MATERNITY AND INFANCY WORK*

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NEW MEXICO apparently gets an unusual amount of maternity and infancy work done by nurses outside of the bureau of child hygiene. Probably one of the main reasons for this is the fact that our whole state department of health is so comparatively new. It was inaugurated in July, 1919—only six and one-half years ago. Since then the communities and counties establishing nursing services have looked to us for guidance in planning their programs and in helping them select well-qualified nurses. We have not hesitated to suggest what we felt was the best plan of work for them, and the state supervising nurse has made visits to the nurses when she was in their territory, even though they were not directly under her supervision.

The nurses themselves feel the need of a general program including maternity and infancy work, because of the physical characteristics of the counties in which they work. When a nurse has to drive anywhere from 20 to 235 miles to reach a school in her county, it would be foolish for her not to try to reach every family in the community visited. The nurse usually inspects the school children in the morning, holds a child health conference and mothers' meeting in the afternoon, and then visits any persons who may be sick in that town. She may be called upon to pull teeth or to prescribe simple remedies. Of course we know this is not according to medical ethics, but when people live 50 to 100 miles away from a physician and are too poor to have one come to them (because the physicians charge a dollar a mile), or have no conveyance in which to get to a physician, the nurse simply goes ahead and does the best she can. If the case seems very serious she reports it to the county health officer, who is usually the county physician as well; and he visits the case.

When you compare New Mexico with its population of only 360,000 (and I believe this includes the Indians on the reservations) with Washington, D. C., which has about 500,000 inhabitants, you can begin to appreciate how very scattered our people are. For this very reason a strong community spirit exists throughout the state and every one works more for the good of the state than for the individual good of his local community.

The state has had severe financial reverses the last few years, due to the drop in the cattle market, severe droughts, and the drop in the price of copper—which was the cause of closing up several mining towns of 4,000 to 5,000 inhabitants. It has been a real struggle to the counties that have nurses to get enough money to pay them; so the nurses feel they must give of their best to compensate the counties for their sacrifice. Another difficulty arises from the fact that we have no hospital nor clinic facilities to which to refer cases. The physicians are usually generous about donating their services in emergency cases if the nurse

*Read at the Third Annual Conference of State Directors of the Administration of the Act of Congress of November 23, 1921, for the Promotion of the Welfare and Hygiene of Maternity and Infancy, held in Washington, D. C., January 11-13, 1926.

will bring the patients to their offices. In some places the local physicians will go with the nurse and health officer and hold a corrective clinic in a school house. One such clinic was held 68 miles away from the county seat, and they removed tonsils and adenoids for 10 youngsters, made several examinations of eyes, and gave the children glasses if the people were too poor to pay for them. They also reset a fractured arm that was growing very crooked, as the parents were too poor to take the child in to a physician.

We understand that Denver, Colo., is to have a hospital supported by the Shriners, a fraternal organization, and we are delighted over the prospect, as we will be able to get some of our crippled children in there for treatment. We have no orthopedic specialists in New Mexico; so many of our children are becoming permanent cripples from lack of care.

There are 16 nurses doing public health nursing in the state, and all except one now come up to National Organization for Public Health Nursing standards. Two are staff nurses, paid with Sheppard-Towner funds; 5 are county nurses, partly paid with Sheppard-Towner money; and the rest are regular county nurses, community school nurses, and nurses in the Indian pueblos. The state school auditor has promised not to approve the budget for a school nurse unless she comes up to the State Bureau of Public Health standards, which are the same as the National Organization for Public Health Nursing. I have visited all of the school nurses but one this year, and all are doing some maternity and infancy work. They say, "Why, we can't let it go when there is no one else in the community to do it!" Almost all, except the Indian pueblo nurses, send monthly statistical and narrative reports to our office. We have no jurisdiction over the Indian service as that is under federal management.

In order to make the nurses' work more effective the state bureau sends out supplies to any nurse who makes a request regardless of whether she comes under our jurisdiction or not.

Since we have such a very limited appropriation we have borrowed material and ideas for our Little Mothers' classes from other states. Little Mothers' classes are being systematically introduced into our schools for the first time this year. As the state has a very large Spanish-American population we are training in infant care many girls who would never learn it otherwise, because comparatively few of them ever reach high school. The girls like the work, and at the completion of the course their graduating exercises are held, and the mothers are invited to demonstrations in child care. Three girls give the demonstration, one doing the practical work, one telling in English what is being done, and the other telling about it in Spanish.

In passing it might be stated that we have the only legislature in the country in which the proceedings are conducted in both English and Spanish, and this is done according to state law. The Spaniards settled in New Mexico some 300 years ago, so they are our first Americans and we feel as though they have the right still to speak Spanish if they want to, because they fought and bled and died to establish a state under tremendous difficulties. However, English is being spoken more and more and as it is also a state law that our schools must be taught in English, the coming generations will be English speaking.

Besides supplies for Little Mothers' classes we furnish midwife certificates to midwives who have completed the bureau's approved course of midwifery and have passed a physical examination. We also furnish the nurses with layette patterns, literature on prenatal, infant and child care, and diet cards for preschool children.

We have a Brayco machine and films and a daylight screen that we loan to the nurses, besides several Braycoramas and a stereopticon machine with slides. We have several regular health films which

the nurses often get some public spirited motion picture manager to show in connection with his regular program.

You may wonder why any nurse would choose to work in a state with so few facilities at hand to make her work really effective. Her efforts are worth while because of the great need for the work and the fact that even the most ignorant try to follow her directions, even though in doing it they may have to give up some age-old superstition. Many of our native people still believe in the power of the evil eye: and they believe in their medicine women rather than in modern methods. To the nurse who is endowed with the pioneer spirit, combined with the spirit of adventure, coupled with self-reliance and common sense, our state offers the most wonderful opportunity for real service that can be found.

In conclusion, I will say that I believe one of the main reasons for the close coöperation the nurses give us in maternity and infancy work is the real spirit of comradeship that exists between the state bureau of health and the individual nurse. We rejoice with her when she has started some mother or baby on the road to health, and we make our appreciation known through our Nurses' News Letter that is issued at irregular intervals.

THE INCREASE IN CANCER MORTALITY

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MAN'S INCREASING MASTERY over disease is one of the outstanding marks of progress in our modern civilization. One by one the scourges of former times, smallpox, yellow fever, bubonic plague, malaria, typhus fever, hookworm, diphtheria, and others have yielded up the secret of causation and prevention so that they can either be readily controlled or completely eliminated. The widespread application of sanitary measures has witnessed an accompanying spectacular reduction in tuberculosis, which once headed the list as the most frequent cause of death, while the mortality from the gastro-intestinal affections has undergone progressive diminution.

Thus, in the registration area of the United States in the period 1900–1920, the mortality from tuberculosis decreased 44 per cent; that of typhoid fever 77 per cent; of diarrhea and enteritis (under 2 years) nearly 60 per cent. In the face of these striking reductions in the death rate from communicable diseases, the progressive increase in the reported mortality from cancer in practically all civilized countries has for many years attracted the serious attention of students of the public health.

Some have held that the increase in the reported mortality was apparent rather than real, that changes in the age distribution of the population, a greater number of survivors to the cancer age, increasing precision in the certification of causes of death, and improvement in diagnosis were ample to account for the increase in the crude death rate from malignant disease. On the other hand, others have urged that the extent of the increase in the death rates is too great to be accounted for by anything else than an actual increase in the mortality.

The latest contribution to this moot question is a study made by the United States Public Health Service of the course of cancer mortality in the 10 original registration states for the 21-year

period 1900–1920. These states were selected because they were the only ones presenting continuous records for the period under consideration, the other states now constituting the registration area being subsequent additions. However, since these states had in 1900 a population of nearly 20,000,000 and over 27,000,000 in 1920, they represented about 25 per cent of the total population of the United States; consequently, the numbers considered were sufficient to give mass value to the data.

The study analyzes the mortality from cancer by specific age groups and also by the organ seat of the disease. Corrections are applied for changing age distribution, and changes in the degree of the precision of death certification; due allowances are made for improvements in medical diagnosis; and the possible effects of changes in racial stock due to immigration are considered.

The general conclusions reached are, that the advances in the crude death rate in the area under consideration are pronounced, the death rate having increased from 63.91 in 1900 to 99.74 in 1920, an increase of a little over 56 per cent. When the population is split up into specific age groups, the upward trend is encountered as early as the age group 20 to 29 years and is most impressive in the age group 70 years and over in which the death rate rose from 514.4 per 100,000 in 1900 to 894.3 in 1920, an increase of 74 per cent.

If the population aged 40 years and over is taken as the one chiefly exposed to risk—since approximately 90 per cent of those dying from cancer are in this age group—it is found that the death rate in this group increased from 212 per 100,000 in 1900 to 311.4 in 1920, an increase of about 47 per cent. Studies of the cancer death rate in this particular group of the population are of special interest because it is unnecessary to apply any correction for a changing age distribution, as in spite of the increase in the median age of the population, the proportion of elderly persons 60 years and over in this age group was greater in 1900 than it was in 1920. In fact, if the 1920 population of 40 years and over were redistributed to correspond to the 1900 age distribution, it would be found that the corrected cancer death rate for this age group would be 316.8 per 100,000 or 5.4 points higher than the observed rate. This corrected rate represents an increase of 49.4 per cent over that of 1900.

As the study goes on to show, all of this increase cannot be accepted as real. One of the striking changes in the practice of death certification is the pronounced diminution in the number of deaths certified as due to "senility" and to "ill-defined" causes. The drop in the combined death rate from these causes in this age group has been from 293 per 100,000 in 1900 to 39.1 in 1920, a decrease of nearly 87 per cent. Obviously a large number of deaths which formerly were attributed to these indefinite causes are now being assigned to other more precise classifications. It is only reasonable to suppose that a certain number of cancer deaths failed formerly to be recorded because of assignment to some indefinite cause.

A slight further correction is also to be made because of the change in the death rate of non-malignant tumors. While the death rate from cancer has been increasing, that from non-malignant tumors has been declining. As a result of these considerations, the conclusion is reached that a little over 30 per cent of the increase in the death rate in the age group 40 years and over may be ascribed to greater precision and more accuracy in returning the causes of death, leaving about 70 per cent of the observed increase due to an actual increase in the mortality.

A good many years ago King and Newsholme came to the conclusion that the increase in the cancer death rate which was even then exciting comment, was apparent rather than real because, in their study of the statistics of the city of

Frankfort, they found that while the crude death rate from cancer had increased in that city, even when the rate was adjusted to a standard population, this increase was due wholly to an increase in malignant diseases of inaccessible sites such as the stomach and liver, the death rates for cancer of accessible sites such as the mamma, buccal cavity, and female genital organs remaining practically unchanged. They concluded, therefore, that the observed increase in cancer, so far as this city was concerned, was apparent rather than real and due to better diagnosis and more precise certification.

This finding is not borne out in the present study. Thus, cancers of the accessible sites, such as the buccal cavity, the breast and uterus, show for the 10 original registration states a higher percentage increase than that of an inaccessible site such as cancer of the stomach and liver. This is shown by the following percentage increase in the rates: cancer of the buccal cavity 103.4 per cent, cancer of uterus 64.7 per cent, cancer of the breast 82.6 per cent, and cancer of the stomach and liver 50.7.

The evidence of an actual increase just given is, however, somewhat weakened by the failure of cancer of the skin to advance since about 1910. Perhaps here the superficial situation, opportunity for early diagnosis, generally lower malignancy, and greater amenability to surgical removal and radiotherapy may tend to explain the failure of the mortality from skin cancer to advance since about 1910.

Regarding the probable effect upon the cancer death rate of the changes in racial stock due to immigration, it would seem that this has been negligible. It is well known that the character of immigration has been changing. The "old immigration" originated mainly in Northern and Western Europe, the "new" from Southern and Eastern Europe. The races contributing to the "old" immigration have been English, Celtic, Teutonic, and Scandinavian; to the "new," the Italian and Slavic.

Since the reported cancer death rates of the latter stocks seem lower, and certainly are no higher that those of the racial stocks from which the "old" immigration originated, it seems safe to assume that the changes in racial stock due to immigration had, if anything, a tendency to lower rather than to raise the prevailing cancer death rate.

As a result of these studies the fact seems to be established with a high degree of probability that, so far as the 10 original registration states of the United States are concerned, the recorded increase in the crude death rate represents, in part at least, an actual increase in the death rate. About 30 per cent of the increase affecting persons 40 years and over may be ascribed to greater precision and accuracy in filling out death returns, but the remaining 70 per cent of the observed increase is due to a greater incidence of the disease.

We can infer that the reason for the increase is connected with the increasing complexity of the social and other environment. This suggests that intensive epidemiological studies may shed light upon the hitherto baffling etiology of cancer.

BIRTH, STILLBIRTH AND DEATH REGISTRATION*

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WHAT is necessary to secure satisfactory registration?

This question has been solved in part by the practical procedure of Illinois which raised its state birth records in degree of completeness from 60 per cent in 1918 to approximately 95 per cent in 1922, when it was admitted into the birth registration area of the United States. The plan has reacted also in the general improvement of the state's mortality records.

The first necessity in securing satisfactory registration is an adequate state law, patterned as closely in accordance with the "Model Law" as existing statutes will permit; for only within such an act—concealed perhaps from the casual observer but available to its administrators—are found those far-reaching police powers which, judiciously applied, will bring about a wholesome respect for and careful compliance with the requirements of registration.

The second requirement is strict adherence by the registrar to the essential principles of registration as summarized in the *Physicians' Pocket Reference to the International List of Causes of Death*. It is his duty to keep posted as to occurrences in his district, even to the most isolated parts; to warn those who transgress the law and prosecute the wilful violators.

The present Governor of Illinois made birth registration a plank in the platform of his candidacy. After he went into office in 1921, the following plan was adopted by the director of the State Department of Health:

Communications were addressed to the state's attorneys of all counties to determine their personal attitude toward the state registration law, and their view of the importance of birth registration, in order that the department might begin necessary prosecutions where they would have the unqualified support of the prosecuting attorney.

The support of the governor was obtained in the enforcement of the law through merited prosecutions, and in support of a general campaign for the improvement of birth registration throughout the state. This support was judiciously mentioned in all correspondence and in all literature published in connection with campaign work.

Evidence of violations or other delinquencies was collected by special field agents of this department and placed before the state's attorneys concerned, in accordance with the prosecuting section of the registration law. There were reported to the state's attorneys only such flagrant cases as the department was unable to correct after having made due representations to the persons concerned.

The organization of special field agents included, in addition to the field agents of the division of vital statistics, all of the district health officers of the department then assigned to field service, together with certain additional officers of the department whom the director designated as aides in carrying out this procedure.

* Read before the Vital Statistics Section of the American Public Health Association at the Fifty-fourth Annual Meeting at St. Louis, Mo., October 19, 1925.

As the work of prosecution of flagrant cases proceeded, these matters were made the subject of general publicity carried on in terse and serious vein, care being taken to accord equal publicity to all cases of established merit in the conduct of registration affairs in areas adjacent to the points where prosecutions were conducted, in order that the public mind might be duly impressed with the justice accorded in all registration work, so that physicians, undertakers, etc., concerned might come to a realization that the department was appreciative of all efforts made in accordance with the law, and that in addition, the many others who had either been indifferent, or who had been guilty of violations as yet undiscovered, would recognize the determination of our department to enforce the law.

There were compiled for the guidance of all special field agents and others concerned, "Tables of Probable Deficiencies in the Number of Births Reported by the Counties and Important Cities and Towns of the State"—laid out with columns for area, estimated mid-year population, the number of births actually reported, the corresponding birth rate per 1,000 population, and the probable true number of births occurring in each area based, as a safeguard, on a return of 25 per 1,000—a figure not greatly in excess of the birth rate for the federal registration area for 1918. Also included was a column for the corresponding probable deficiency in each area on a 25 per 1,000 basis.

The assistance of women's clubs and nursing and child welfare organizations was enlisted by the department in carrying on its birth campaign work, but care was taken that the efforts of these organizations should be kept well within the control of the State Department of Public Health, through its special field agents who functioned according to definite territorial assignments.

Intensive work to improve birth registration conditions was accomplished in many directions with gratifying results.

For the purposes of properly conducting investigations and the rendering of uniform reports for the guidance of the department, questionnaires were compiled for the use of all workers assigned to this work.

Separate questionnaires were prepared for use as follows:

When visiting physicians, duly licensed practitioners, hospitals, and lying-in dispensaries

When visiting priests, ministers, pastors, etc., for examination of records of religious organizations

When visiting local registrars, these latter arranged so that particular stress was laid on these points:

1. In case they have no certificates for the preceding month, that they promptly report this fact on the cards provided for that purpose as required by Section 18 of the Amended Registration Law.

2. Do they file their certificates promptly on the 10th of each month as required by Section 18? Do they examine each certificate carefully for errors or omissions as Section 18 requires? Have they a complete and up-to-date list of all physicians, midwives, undertakers and sextons in their district, showing name, address, and occupation as required by Section 15 of the Registration Law?

3. Are they satisfied that every physician and midwife is promptly reporting every birth which they attend?

4. If not, who of these, in their judgment, by name do they suggest that their investigators should visit in order to make sure that no births have been overlooked?

5. Specifically, of what births occurring within their jurisdiction have they absolute knowledge which have not been duly reported to them, and by name, who is concerned? (It should be clearly set forth in such questionnaire that such information of this character as given by local registrars and others, will be confidentially reported direct to the State Department of Public Health, and be used by them guardedly and tactfully according to their usual custom in handling such cases.)

6. What particular difficulties in connection with the registration of births are they experiencing? (In this connection, show briefly those obstacles which are due to local conditions such as differences in opinions in regard to the law,

etc., which can be overcome by a little local missionary work on the part of the interviewer so that a better understanding will result among the persons concerned; lack of transportation, round-about roads, distances, etc., which make it seem desirable for the Department of Public Health to further investigate matters with a view of possible change of registration district boundaries.

All investigators were instructed that upon receipt of confidential information from a local registrar, they should go directly to the negligent one and after securing admission of his negligence, present the necessary blank certificates, requesting that they be filled out and returned to the local registrar. This measure was adopted as an entering wedge to enlist the coöperation of such delinquents, but they were, of course, informed that the law required them voluntarily to present certificates of all births where they were in attendance without being followed up for this information.

Throughout the course of the campaign work the advantages of the department's "Certificate of Registration of Birth" were given special prominence. A new edition of the Department's *Directory of Registrars of Vital Statistics* was printed with its chapter of "Instructions to Registrars" re-written in clearer and more illuminating and comprehensive form. Duplicate copies of the department's field report forms were prepared for the use of investigators in charge of the various areas covered, in order that reports of progress might be uniformly returned from all areas, and a close check be kept upon all matters under investigation.

Investigators were supplied with copies of the pamphlet "Why should births and deaths be registered?" as issued by the American Medical Association's Council on Public Health, for distribution.

The department supplied itself with newspaper clippings covering all registration matters within the limits of the state, particularly with reports of births, and local vital statistics reports, so that these could be checked against its office files, and discrepancies followed up.

As past experience had shown that however thoroughly organized any corps of investigators might be, or how thoroughly they endeavored to cover their territory, there would always remain certain persons impossible of interview form letters, designed to reach such persons, were prepared and mailed to them.

When the returns were all in, we took account of stock and sent to each local registrar a statement of our findings with respect to his district, making it clear to him that he would be held responsible and that it was the intention of the State Department of Public Health of Illinois to see that each of its officials discharged his full duty to the state in respect to registration. Shortly thereafter, Illinois became a registration state for births.

What is necessary to maintain satisfactory registration?

All that has been said in the foregoing is applicable in maintaining and improving the standard. Eternal vigilance, constant attention, both locally and at headquarters, is imperative.

As soon as the notice was received that Illinois was an accepted state in both registration areas, schools of instruction were organized by the department for all officers and their assistants, and all members of the field force.

Detailed instructions for future conduct were delivered in these sessions to the end that all concerned might be similarly informed. These, of course, need not be detailed here—they covered all points incident to the usual routine and mentioned procedure to be followed in connection with the various types of "difficult cases."

The present status of Illinois as a federal birth registration state is directly due to the personal attention accorded by our Governor and director of the State Department of Public Health whose attitudes have unquestionably resulted in securing public coöperation.

SEWAGE TREATMENT FOR GOLF CLUBS

FRANK WOODBURY JONES, AND GEORGE B. GASCOIGNE,
FELLOW A.P.H.A.

Consulting Chemist and Consulting Engineer, Cleveland, O.

GOLF OR COUNTRY CLUBS being situated as a rule remote from public sewer systems require some independent method for treating their sewage.

In order to dispose of the sewage from a golf club, several requirements must be met. In the first place, the whole treatment plant must be as inconspicuous as possible. A sewage plant under the best conditions is not particularly attractive; as part of a recreation ground it should be hidden. In the next place, the final effluent must be of good appearance; it should not attract even passing notice, especially if the brook or run into which it is discharged passes through the course. Then, too, the plant must operate with a minimum amount of attention. No ground keeper wants to be bothered with a sewage plant. He usually has enough other troubles. It is fair to assume, therefore, that unless the devices function successfully and practically automatically, the plant as a whole will soon fall into ill repute.

The most stringent requirement, and perhaps the one hardest to meet in some instances, is that the sewage plant must operate and produce a satisfactory effluent without creating odors. Absence of odor in such cases cannot be relative, it must be absolute. Good golf demands that there be no distractions. Consequently, even a slight sewage odor may be considered a mental hazard, and just blame for high score cards.

The sewage from a country club varies greatly in rate of flow, but its character in most cases probably is essentially similar. It is generally derived from four main sources: toilets, showers, kitchen and laundry, the amount from each depending upon the size and general use of the club house. It differs from municipal domestic sewage in that the percentage of soapy water and grease is relatively much higher.

The methods usually employed in treating the sewage from country clubs are combinations of sedimentation and filtration, with perhaps the septic tank followed by sub-surface irrigation of some kind the most common. However, these plants are often constructed without due regard to soil conditions, and trouble sometimes follows.

The purpose of discussing the possible ways of treating the sewage from golf clubs, may best be accomplished by outlining briefly the method employed at one club to satisfactorily dispose of its sewage, and by drawing conclusions from this installation which may be applied generally.

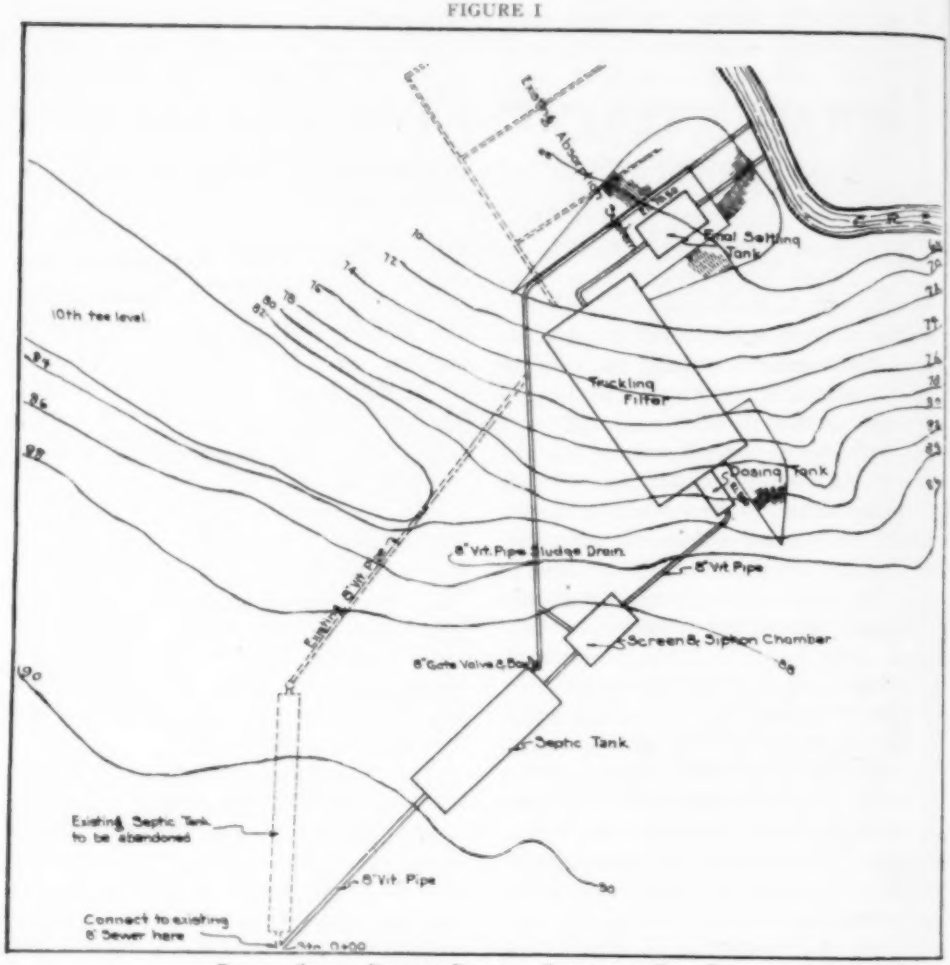
DESCRIPTION

The Canterbury Golf Club is situated in one of the suburbs of Cleveland at too great a distance from a public sewer to make a connection. A proprietary septic tank, far too small, followed by an absorption system which did not absorb but produced a vile smelling swamp, made it necessary to institute a change in the method of sewage disposal.

The accompanying plan shows the layout of a plant which, after a study of the problem, was recommended and built at a total cost of about $3,600.

The treatment plant includes a septic tank, grease chamber, by-pass overflow,

FIGURE I



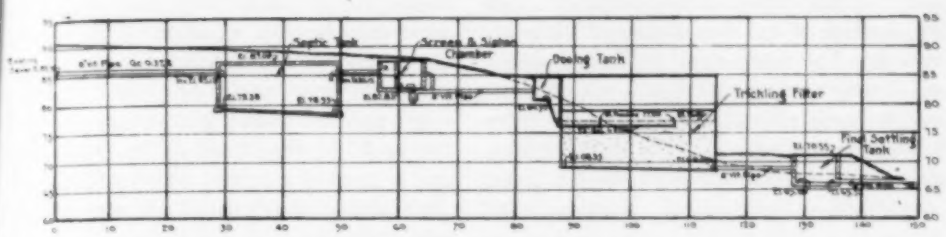
PLAN OF SEWAGE DISPOSAL PLANT AT CANTERBURY GOLF CLUB

grease screen, siphon chamber, dosing tank, trickling filter and final clarification tank or bed. The sewage treated includes wastes from the kitchen, toilets and showers. No roof water is admitted to the sanitary sewers. The flow of sewage is estimated at 40 gallons per capita per day of 16 hours, the total daily volume being estimated at 8,000 gallons. On the above basis, the plant can serve 200 persons.

The plant is located about 150 feet from the club house, the portion above ground being hidden for the most part by trees and the topography. The sewage enters the septic tank from two main lines, one from the kitchen and the other from the toilets and showers. It was not feasible to put a grease trap in the kitchen line. The septic tank 20 feet long by 5 feet wide, and having a water depth averaging 6 feet, gives a detention period of approximately 13 hours. The sludge can be removed in winter by opening a sluice gate, and discharging by gravity either onto low ground or into a brook at high water. The tank is just below ground level and is covered, with provision for entry through two manholes.

From the septic tank the sewage flows into a grease chamber, whence it passes through a removable screen into a siphon

FIGURE II



SECTION OF SEWAGE DISPOSAL PLANT

chamber. In the grease chamber, balls of grease which pass through the septic tank are floated and held back by the 4 mesh wire screen. In winter this screen is removed and a stop plank substituted. Any sewage flowing through the tank then rises and passes through an overflow direct to the creek. After passing the screen the sewage enters a small siphon chamber equipped with a 5-inch Miller siphon.

The siphon, which empties the chamber in about one-half minute, discharges the settled sewage into a small dosing tank which feeds two nozzles on the trickling filter. The dosing tank holding 185 gallons operates under an effective head of from 5 to 0 feet, the flow from the siphon occurring in such short time that full benefit is derived.

The trickling filter is 26 feet by 13 feet in plan and 10 feet deep, underdrained by half tile abutting on a central drain. The filtering material is a local slag 1 inch to 2 inches in size and is contained within a water-tight timber crib which is roofed over, entry being obtained through a small door in one end. The sewage is distributed over the surface by two Pacific Flush Tank nozzles operating as stated previously under a falling head of from 5 to 0 feet. The filter building is ventilated by means of an electric fan.

The effluent from the trickling filter discharges into a small tank 7 by 4 by 5 feet deep, which may be used as a settling tank, or be filled with sand or cinders to operate as a strainer. At the present time, it is operated as a strainer. The final effluent discharges into a small run which is dry in summer.

The distinctive features of this plant are the grease chamber and screen, the dosing tank separate from the siphon chamber, the tightly covered trickling filter with a ventilating system used at night, and the final clarification filter.

OPERATING RESULTS

The plant as a whole has operated satisfactorily from the start, when viewed from mechanical and biological standpoints. From the esthetic viewpoint, however, it did not do so well at first, and various means were tried to eliminate the occasional odors which in a municipal plant would have been considered negligible, but which on the nearby tenth tee was a cause of grave concern.

Boarding up the 6 inch screened opening in the sides, suspending trays of chloride of lime inside the building, ameliorated, but did not entirely do away with the odors which escaped occasionally. Finally, an 18 inch Ventura electrically operated fan was installed in one gable of the filter building. This fan is operated usually at night and so changes the air inside the building and dissipates it, that during the past summer there have been very few complaints. Before passing into the atmosphere, the air from the filter is forced downward through a column of charcoal, recently added.

Except during some peak conditions, when all the showers are in use, the final effluent is clear. It does not cause nuisance even when discharged into the dry run.

The plant has been in operation for the past 2 years from early spring till late fall, and thus far has required little attention. The septic tank, siphon chamber and dosing tank are all below ground, yet readily accessible. The trickling filter sets in the hillside, and the final tank or strainer near the creek. The visible parts of the plant are not conspicuous; the effluent is satisfactory and the devices require little attention to keep them working in such a manner that the player can do his regular number of holes without the distraction of sewage odors.

CONCLUSIONS

Our experience with the sewage problem at the Canterbury Golf Club and other country clubs clearly demonstrates that in order to satisfy the demands of a supercritical membership, the logical and most satisfactory manner to dispose of the sewage is to discharge it into a public sewer, if it is at all possible. If, however, this is found to be impracticable, the problem should receive careful study and a method adopted which will produce satisfactory results without odor, with a minimum of operating attention, and from devices as inconspicuous as possible. Where suitable sub-surface irrigation or filtration is impracticable, a plant of the type described above will prove satisfactory, particularly if the topography permits a gravity installation. Such a plant requires relatively small area and can be made to harmonize with the surroundings.

VITAL STATISTICS TRAINING*

THIS COMMITTEE was appointed to consider the possibility of offering special training in vital statistics. It is unreasonable to suppose that any large number of employed persons now engaged in some field of public health or allied science can, or would, leave their positions for the time necessary to take the work in vital statistics here discussed. If this training is to reach the group now employed, it will be necessary to offer this work through correspondence study courses.

Johns Hopkins University has indicated its willingness to consider the giving of correspondence courses in statistics under certain conditions, and it is possible that some other schools will do the same, and this committee was appointed to consider this matter and report to this section its ideas as to what should be included in such courses.

It seems necessary to make some division of the groups of persons who prepare or who use vital statistics and consider the training required by each, if they are to make intelligent use of available knowledge of this subject. The following divisions are offered:

1. Health officers.

By this term we mean to include those men who are acting as administrators of health departments, state or municipal, bureau directors, epidemiologists and others occupying administrative or executive positions. These persons are supposed to have and to be keeping in repair the necessary foundation in medicine, public health and hygiene, laboratory sciences, epidemiology and sociology. They are called upon to use vital statistics

* Report of the Committee presented before the Vital Statistics Section of the American Public Health Association at the Fifty-fourth Annual Meeting at St. Louis, Missouri, October 20, 1925.

every day in their work, and to do so intelligently they must have sound training in certain branches of vital statistics. This training should include:

1. A study of those elements of population structure and industrial compositions which affect the rates of sickness and mortality.

2. The preparation of crude data and some of its elementary and necessary refinements.

3. The preparation of tables, charts and elementary text for the lucid presentation of current and historical public health facts.

4. A brief course in the elements of statistical logic, including the simpler mathematics of public health statistics, the concepts of variability, association and dependability of the commoner ratios in medical and vital statistics.

As this training would require only such mathematics as might be reasonably presupposed in an individual having sufficient education to meet the fundamental requirements set forth above, special training in mathematics would not be offered.

II. Sociologists, biologists, laboratorians, sanitary engineers and all those who handle registration reports and prepare plans of procedure based on the findings.

As this group would represent many different kinds of training in the physical and social sciences, preliminary courses would necessarily be required to supply such training as was lacking.

In this field a student must be given the opportunity to familiarize himself with the type of problems to which his statistics are to be applied through a sound but reasonably comprehensive course on the principles of public health. This course should give the outlines of the general public health program, including public health history with the fundamental principles of hygiene, physiology, bacteriology and medicine involved. There should also be included some instruction in pubic health administration, so that students can understand how this work fits into the general scheme. Students should also be required to take work in epidemiology and perhaps in climatology, fields in which vital statistics plays an ever enlarging part; working competence in elementary and advanced mathematics is helpful as above suggested and if not possessed by the student, work therein should be required. The committee conceives of mathematics as a tool of statistical logic and not necessarily as a discipline apart from the other prerequisites of the vital statistics aspirant.

III. Registration officials and assistants.

This class of persons must understand thoroughly the principles of public health practice in all of its phases and advanced mathematics is desirable. In addition they must know the history of vital statistics, the principles of public health laws and particularly registration laws, the technic of office administration, classification, collation and tabulation and they must be familiar with the multitude of administrative details. In addition they should have a working competence in the details of statistical practice in all of its more important branches.

The registrar is the general practitioner of statistics and should call on the mathematical specialists whenever necessary. Just as the general practitioner in medicine often takes special courses along special lines, so here, courses in higher mathematics, in medicine, in law, in sociology, etc., should be regarded as desirable. Much would undoubtedly be gained by closer coöperation between registration offices and universities giving graduate courses in statistical analysis.

Granting that the mathematical side is important, the committee wishes to make clear that it recognizes as equally important the ground work given by a 4-year medical course, the ground work given by hospital experience, by private practice, by the study of legal medicine and by the study of sociology.

Not only should there be a thorough early foundation of this kind, but this foundation must be kept in constant re-

pair. For example, the live health officer and registration official must keep up with medical progress so that he can discuss intelligently with physicians and others the certification of causes of death.

The committee stresses the point that the man who would fit himself as a competent vital statistician should not confine himself to mathematics, but should acquire as broad a foundation as possible, medical, sociological and mathematical. Every medical man knows that it is absolutely impossible for a physician to learn all there is to learn in all the branches of medicine—life is too short for that. The result is that we have general practitioners and we have specialists.

Now the mass of varied details which burden every registration official must of necessity force him into the rôle of the general practitioner. He cannot devote his entire time to any specialty. He must primarily be a man of breadth and common sense. If special problems arise which require knowledge beyond his own he must, like the general practitioner, recognize his own limitations and call upon the specialist—whether it be a specialist in medicine, mathematics, sociology, law, epidemiology, or in some other line.

The same argument holds for many other public health workers.

IV. Actuaries, insurance statisticians and university instructors in statistics.

This group represents the specialist group of statisticians and their training cannot be too rigorous, especially in analysis, but must be in accord with their previous training and major in their particular specialty of application.

As an example, we may quote the practice of one of the universities: Columbia University has recently provided 2 prerequisite courses for statistical students, (a) differential and integral calculus, (b) finite differences, interpolation and graduation, and the mathematical foundations of quantitative logic; these preparing the student for work in a special branch of applied statistics, *i.e.*, vital statistics, economic statistics, etc.

These classes above referred to might be subdivided indefinitely, probably no two prospective students will be found to have exactly the same preparation. Study courses must necessarily vary in accordance with individual needs, keeping always in mind that the fundamentals must be required and not elective. Universities offering these courses are, of course, equipped to give the needed instruction in any of these branches; whether or not they can be successfully taught by correspondence is somewhat doubtful. Previous experience suggests, however, that the plan is worth a thorough trial. Where the work is taken without university credit, it would seem feasible to permit the student to do such work as he feels capable of doing without insistence upon all of the previous credit that will be essential where the work is taken for credit toward a degree.

The committee feels that a definite program should be adopted and submitted to those universities or colleges offering correspondence study courses and if they are prepared to offer this work, that this section recommend to the Association that due publicity be given through the columns of the JOURNAL and that every effort be made to encourage persons to take this work with a view to preparing themselves for better positions and a larger contribution to public health, and community and national welfare.

The committee feels that this work could properly be carried on as a subcommittee of the Association's General Committee on Public Health Training and that this committee should be continued in that capacity.

W. J. V. DEACON, M.D., *Chairman*
RAYMOND PEARL, PH.D.
C.-E. A. WINSLOW, DR.P.H.
WILLIAM A. DAVIS, M.D.
E. W. KOPF

MOTIVES WHICH BRING ACTION*

THIS was the subject of a discussion based on samples of publicity and educational material distributed at one of the sessions of the Health Education and Publicity Section at the Fifty-fourth Annual Meeting of the Association at St. Louis, Mo. The discussion consultants were Edgar James Swift, Ph.D., head of the Department of Psychology, Washington University, St. Louis, Mo., and Ethel M. Riddle, Ph.D., psychologist Community School and John Burroughs Schools, St. Louis, Mo.

Reproductions of leaflets which had been distributed by various agencies were projected on the screen. Philip S. Platt, C.P.H., *Chairman*, opened the discussion:

Chairman—What motives will drive men and women to have health examinations? We have been doing health examination promotion for many years. We have not been any too successful. Why? Can we look over 10, 15 or 20 specimens, taking as representatives the type of material being used to-day, and gain from a brief study of such material any lessons?

(An appeal based upon personality was projected upon the screen for criticism.)

Dr. Swift—A personality appeal depends entirely upon the individual, not the individual you are trying to reach, but the individual who does the thing. If Babe Ruth does it, all the boys and young men in the country will do it.

Chairman—The National Health Council's appeal "Have an Examination on Your Birthday" is shown and the question is raised from the floor, "How many of those present have had an examination on their birthday?" (Six hands raised.) "How many have had examinations at all?" (Majority raise their hands.) Professor Turner, does the motive back of the suggestion to have a health examination on your birthday carry weight?

C. E. Turner—I think the chief advantage of suggesting the birthday is that it gives to the individual a point of specified time for him to do it.

Chairman—Is that a good thing?

Member—In some community health work we keep track of the birthday of each child and during his birthday month we send a request to his home urging a health examination for the child. That has resulted in many birthday examinations during the birthday month; so we have found that very useful, indeed.

Chairman—That is an excellent instance of driving the message home to the child's parents. Is this appeal as effective with adults as it is with children? Does anyone else wish to speak on the effectiveness of this type of appeal which urges you to be examined on your birthday?

Member—The birthday is probably the only day in the year when we realize that the year is past.

Dr. Riddle—The difficulty in saying that you should be examined on your birthday, is that the birthday may come a long time after the appeal, and the appeal to be effective must suggest action that comes rather soon. Now, in the instance cited, there was follow-up work. If this can be done, and if an individual appeal is made to the person it might be effective, but it seems to me that the suggestion for the examination should be made as soon as possible after the appeal, so that it could possibly be dated as a special time, or some time that is near.

Chairman—Our next specimen is entitled "Margin Movies." The motive used in this particular leaflet obviously is the appeal to efficiency. The analogy between the human body and the machine is strikingly made with the suggestion that a man's efficiency may be raised by treating himself as well as he treats his engine. Who will speak to that point?

George T. Palmer, Dr.P.H.—I might say that I get a good "kick" out of this. It is right to the point. I see the idea, and I think it is a strong appeal.

Chairman—Is this an appeal to the emotion or an appeal to the intellect?

*Abstracts of a discussion held at a luncheon session of the Health Education and Publicity Section of the American Public Health Association, at the Fifty-fourth Annual Meeting at St. Louis, Mo., October 21, 1925.

Member—Isn't it an appeal to your common sense?

Chairman—Dr. Swift, would you consider that an appeal to efficiency was a strong motivation, one that gets action?

Dr. Swift—No, because it is an appeal to the intellect, and appeals to the intellect do not carry. You have ample illustration in the fact that the people do not know scientific facts. They are carried away by their emotions, and common sense is a matter of intellect finally.

Chairman—We are not considering many elements important in judging the effectiveness of an appeal. We should like to know how it is used, to whom it goes, for instance, to movie audiences, to school children, to selected mailing lists of highest income taxpayers, or does it go to Tom, Dick, and Harry? Unfortunately, we cannot define ourselves as clearly as that here. Has anyone used this particular leaflet in his work? Of course, in the last analysis, in all of this educational work we ought to be able to show results.

Dr. Riddle—I just want to report an experiment that was made in regard to the appeal of efficiency. An experiment was made with 20 individuals who were asked to say which appeal would be most effective with them in securing action, and efficiency took sixth place in the list of appeals. Health was first, cleanliness second, scientific interests third, and efficiency sixth. Invariably we use those types of response that make decision easy, when they are suggested to us. That experiment suggested a definite line of action to which we are accustomed to respond.

Chairman—Our next picture and the one following are attempts to convey the same idea, being analogies between the human being and the machine which calls for inspection, or, in other words, a health examination. Here is a man who has been to the doctor. He comes away and says, "No knock in this engine." The analogy is made; the beneficial effects of the examination are manifested in his feelings; and the question now comes before us whether this would be a stimulus for having a health examination. Does anyone think it would? Has anybody used it?

Member—I used the comparison between looking after your health and looking after an automobile in high school. I find it gets good response among boys and girls.

Chairman—Boys and girls who are being trained to use their minds certainly ought to see the analogy and be interested. Whether it produces results or not is another question—we would certainly like to think it did. What do you mean by saying that the action you try brings results?

Member—Boys and girls seem to understand it, feel it is the time to do it, and realize the thing should be done. I have several children who have deliberately come for examination. It proved to be very good in my tuberculosis clinic. Last spring 3 girls and 3 boys asked for examinations.

Chairman—That is an encouraging statement. The question also arises in this connection, whether we are preparing an attitude of mind about the health examination, so that when the real impelling motive touches the individual it will stir him into action. Of course, it is justifiable to spend money and lay a foundation of receptivity on the part of individuals so that they are in a frame of mind to take action when the proper stimulus comes. Perhaps it is too severe a test to expect an appeal to impel action in an individual immediately. As a matter of fact, a good sharp pain would be more effective than any written matter.

Member—If the laboring man was examined and, as a result, became more efficient, what increase in pay would he get for the additional shovels that he shoveled?

Chairman—He might not get higher wages but he would certainly get more wages because of losing less time through illness.

The next pictures deal with the motive of fear. Fear is a strong motive, no doubt. Here is a picture of a burning building which may or may not have been insured. Everyone dreads the thought of having an uninsured building burn. You feel this is a sort of comparison between health protection by examination and fire protection by an insurance policy. Is the idea a good one, Dr. Swift?

Dr. Swift—I think that the idea is unquestionably a good one. Whether that particular illustration as given there with so much reading attached to it, for example, is as effective as it could be made is, in my opinion, doubtful. There is no question at all that fear is about the strongest motive that can be appealed to in human beings.

Member—Is there any possibility that this sort of a poster would cause complications? We are too anxious about our health. You want to get away from fear.

Chairman—Has anyone seen the fear motive used in health education to a degree that seemed to be pernicious? If so, we should be glad to

hear about it. We all know that it is often actual pain, or fear of the recurrence of pain, that sends persons to a doctor for a health examination. Fear of pain, sickness and death is an enormously potent motivator of action. Of course, it is far from the ideal, but we are dealing with human nature as it is, and not as we think it should be.

Member—I think the fear appeal was very active and very manifest in tuberculosis campaigns. But I am sure anybody who took active participation in these campaigns knows that fear did not get across the message that was intended.

E. G. Routzahn—The only study that has been made of materials in connection with venereal diseases seems to prove that fear is not effective in that particular field. That may not apply to the health examinations.

Member—We learned that only a third of us have been examined in the last year. What have the rest of us been doing? We have been thinking it would be a good thing for the other fellow. The other fellow does not know as much about it as we do, and if two-thirds of this group, trained in health work, haven't thought it necessary in the last year for ourselves, how can we expect other people to do it?

Member—I just want to say to those who have had some years' experience in public health work, that if you want rational appraisal of what figure fear cuts, you have only to take into consideration the question of vaccination against smallpox and administration of toxin-antitoxin for the prevention of diphtheria. We discovered that if we publish the fact that a number of cases of diphtheria have been cropping up in the community, and also the number of deaths resulting, parents will flock with their children to be vaccinated.

Chairman—Let us push this last point of view a little farther. How do you suggest that we use the fear motive to induce individuals to have health examinations? Against what eventuality do we want to arouse their fear? Or are we all wrong about using fear as a motivating force? If you were preparing a poster or literature on this question, would you put as the primary motive in your appeal the prospect of calamity? How many would not? (Majority raise their hands.)

Member—Of course, I realize that the great philosopher Carlisle said, "Fear nothing but fear." I believe that in every sense in which it was said, but that isn't with respect to carrying about the person the elements of apprehension about anything. That is true, strictly true in the sense that he means it.

Dr. Swift—I take it you want results and that you are not trying to reconstruct human beings, and I suspect that about three-fourths who voted against fear voted with the idea that human beings ought to be reconstructed. If you are trying to get results, appeal to those motives which will produce results, and what was said just a moment ago shows perfectly well in all of those cases that fear is a driving motive. It does not make any difference what your notion ought to be. In my opinion the question is, "What is the driving motive?" I do not believe you will find any driving motive with more force than fear.

Member—It occurs to me that we are losing sight of the fact that individuals are not built according to a standard, and while some are quite emotional, perhaps the intellectual understanding in others will be the guiding motive. I think if we are to appeal to individuals we must have all sorts of motives and truths to get a reasonable percentage from each of our appeals.

Dr. Riddle—I do not think there is any question but that fear is a very strong fighting motive in relation to yearly examinations. I just want to say something from my own experience with persons whom I have tried to persuade to have examinations because the doctor was afraid they had cancer, and fear in that particular case is one of the strongest motives to keep them from having the examination. We should think of the effect it will have in the particular instance we are considering.

Haven Emerson, M.D.—In regard to the matter of fear, many criticise us for trying to frighten individuals. It has always seemed to me that fear of ignorance concerning ourselves is a very definite motive. Fear of the consequences of disease has been proved, I think, a worthless motive. If any people or group of people ought to fear venereal diseases it should be medical students who see the results, and there is no evidence that it is less prevalent among medical students. Seventy per cent of our patients in tuberculosis clinics are found to be non-tuberculous. They come there for fear of ignorance concerning a possible curable stage of the disease. They are not afraid of tuberculosis, but it is the fear of ignorance.

I believe fear of ignorance is a creditable fear. All others are beneath contempt. There is only one thing to be afraid of and that is

ignorance. When it comes to being afraid of disease, that is as contemptible as being afraid of sudden death, and is as unworthy a thing for us to inject to persuade persons to act in the way of health examinations.

Chairman—Dr. Swift, do you agree with that interpretation of fear?

Dr. Swift—No, sir, there again is an attempt to reconstruct man. The human mind is probably about the most inefficient organ in the human body, and prejudices, superstitions, and all sorts of interferences with thinking are prevalent in the most educated people. I am quite willing to admit that from a theoretical and intellectual point of view, the fear of ignorance is the only desirable fear, but I do not believe there are many men and women in this world who have it.

Iago Galdston, M.D.—I wonder if Dr. Swift realizes that fear, working one way, works equally as effectively the other way. And as to the second point, Dr. Swift is rather hard on us because we want to reconstruct human nature. If we stop to think, all public health work is essentially a reconstruction of human nature.

Member—We have all heard many times that these health examinations are just a form of life insurance. That is our attitude toward health examinations. I would like to ask the various persons in this room, at least the fathers of families, why they took out life insurance. The reason I took it was solely and chiefly on account of fear of leaving my family in poverty. That is an example of fear for you.

Dr. Riddle—A rather intellectual group, college students, was experimented upon in this respect, and they probably would respond more to intellectual appeals than the average audience to whom these posters or handbills go, and they put the appeal rather far down in their list, at the nineteenth place. Now, I do not know whether that would be indicative of the simpler or less educated audience.

Dr. Swift—I frankly admit that this form of the same idea which we have had a moment ago appeals to me rather strongly, that is, the idea of being able to do things, to "take it on high"; the idea of being able to accomplish things, to subdue the world, if you please. That form of the same idea appeals to me rather more strongly.

Member—To my mind hope is the greatest appeal of all, and this brings to my mind a proverb, "He who has health has hope, and he who has hope has everything." I think that the hope-optimism element is as great an appeal in this work as in any other work.

(The Metropolitan Life Insurance Company's brief film on periodic health examinations was then shown.)

Dr. Riddle—I just want to say that this is positive, and positive suggestions bring action. It seems that we cannot have anything better than a positive appeal. The film produced by the Metropolitan Life Insurance Company is an admirable example, it seems to me, of taking one idea and driving it home with 20 or 30 blows. The comparison between an individual's body and machinery, between the necessity of constant inspection of every kind and efficiency, between keeping well and keeping in action, is vividly made and this film drives home this one appeal from 20 or 30 different angles.

TRAINING SANITARIANS IN MEXICO CITY

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HOW MEXICO CITY is training the men and women engaged in the protection of the health of its citizens is another chapter to add to the history of public health work. It has worked out a unique plan, not a model plan to be sure, and perhaps not one that can be adopted in entirety by any other city, but the scheme does prove that a city can train its present staff of public health workers to carry on their specialized work.

The Department of Public Health in Mexico City has established a school, financed entirely by the department budget and conducted in a building especially appointed and equipped with laboratories and lecture rooms to meet the needs of its 200 or more students. The faculty of 15 men and women, prominent in their own fields of work, is drawn from the National Faculty of Medicine, the Military School of Medicine and the Academy of Medicine.

The school was first advertised by circular letters sent to all employes of the health department, stating that inasmuch as they were members of the public health staff they were expected to fulfil the requirements of eligibility by completing the courses offered by the school. Others interested in public health work were also circularized and now the school has taken a conspicuous place as one of the educational institutions of Mexico City.

All employes of the Department of Public Health are requested to take the courses related to their special work. Although the school exists primarily for the benefit of training those already engaged by the department who do not hold diplomas from any other school of public health, as well as applicants awaiting appointments, individuals outside the department are eligible for certain courses, for instance those included in the curriculum for visiting nurses. It is not a postgraduate school nor does it propose to make expert sanitarians out of physicians. On the other hand, many women holding nursing diplomas are registered for courses offering a diploma in public health.

The curriculum offers courses for bacteriological laboratory assistants, inspectors of the bureau of communicable disease, sanitary inspectors, disinfection officers, nurses of the City Woman's Hospital, visiting nurses, and food and milk inspectors. A course in sanitary law required of all students registered in the school is covered by one lecture every two weeks. School medical inspection is provided for by the local board of education. The number of registrants in the courses varies from 23 to 51 and the majority are now engaged in some service of the public health department.

Proof of the practicability of the school is shown in the following number of registrants: 23 bacteriological laboratory assistants; 51 registered in the course for inspectors of the bureau of communicable diseases, most of whom are employed in the department; 26 sanitary inspectors; 24 nurses from the City Woman's Hospital; 10 visiting nurses, and 37 others taking the course for visiting nursing; and 42 food and milk inspectors.

The lecture method is used throughout the curriculum and in the laboratory courses this is supplemented by actual

laboratory problems. Because the school is so very new and the department hopes to stimulate interest beyond its staff-students, the professors have been requested to prepare mimeographed copies of each lecture for distribution among the students registered and among prospective applicants to the school and for positions in the city health department. It is hoped that eventually these recorded lectures will be developed into text-books for future classes in the school of public health. The school year covers 9 months, with the minimum of one lecture each week in every course. At the close of the school year diplomas are given to those who successfully pass the examinations in the subjects in which they specialized.

The training offered the student aims to be intensive as well as practical for daily application in solving the problems encountered in the routine of service. Each course has been prepared with these 2 aims in view. An outline is given below of the course planned for visiting nurses and as a part of the course required of sanitary inspectors and inspectors of the bureau of communicable diseases is an example of the type of preparation given.

OUTLINE OF COURSE GIVEN BY THE DEPARTMENT OF PUBLIC HEALTH OF MEXICO CITY

- Hygiene—Definition, General Hygiene, Special Hygiene, Prophylaxis, etc.
  - Personal or individual hygiene—Cleanliness
    - Hygiene of the mouth and teeth, eyes, clothes
    - Nutrition—Diet, etc. Special study of milk
    - Physical exercise
      - Advantage of and inconvenience of sports
    - Danger of alcohol
  - House Hygiene
    - Study of buildings, floors, walls, furniture
    - Ventilation
      - Natural and artificial ventilation
      - Special study of fresh air and confined air
      - Importance of good ventilation and the prophylaxis and treatment of respiratory diseases, especially tuberculosis
    - Determination of per capita surface and per capita volume in buildings
    - Danger of overcrowding
    - Light
      - Importance of sunlight
      - Disinfecting power of light
      - Importance of sunshine in tuberculosis and rickets
    - Darkness and filthiness
      - Filthiness in homes
      - Importance of removing refuse and garbage
      - Propagation of diseases through fly breeding places
        - Fight against flies, rats, mice, and other nuisances
          - Their danger from a public health standpoint
    - Dust
      - Its importance as a vehicle for pathogenic bacteria
      - Origin of dust
      - Danger of dust in homes
      - Right and wrong ways of cleaning homes
        - Dangers of rugs, draperies, etc.
    - Water
      - Water borne diseases
      - Purification of water at home
- Prophylaxis of Communicable Diseases
  - Treatment according to the way of entrance of diseases to the body
  - General notions about isolation, immunization, disinsectization
  - Disinfection of human products, sputum, fecal matter, bed and bed clothes, eating utensils, and hands
- Special Diseases—modes of infection, origin
  - Prophylaxis of special diseases, both from the social and personal standpoint—isolation, disinfection, immunization, both active and passive, or active-passive, disinsectization, etc., as the particular disease may require
- Study of Major Communicable Diseases
- Public Health Education
  - Formation of right living habits
  - Personal hygiene
  - Conduct of the individual in cases of disease
  - Danger of self treatment or self medication
  - Danger of patent medicines, drugs, quacks
  - Importance of the attention of patient by competent physician
  - Importance of promptness in getting medical advice
  - Danger of last hour calls
  - Advantage of family physician
  - Trifling diseases in the judgment of laymen and serious in the judgment of physicians
  - Trifling diseases which become serious because of lack of attention
- Child Hygiene
- School Hygiene
- Industrial Hygiene
- Ethics of Public Health Workers
  - In their relation to the public
  - In their relation to officials

How long can the public health school be conducted on the present basis? This is a question that has confronted the director of the school and the administrators of the department of public health.

The personnel of the department of health is constantly changing, and this is especially so in the case of sanitary inspectors, with the result that throughout the year a new group of students are entering the courses which makes it impossible for them to fulfil the 9 months requirement. One suggestion as a means of solving this problem is to divide each course into periods of four and one-half months, which will undoubtedly mean a revamping of the present lecture series.

The second great problem and doubtless the most serious one involves the future of this unique school of public health. Will it be maintained permanently by the department or will it only be necessary to open it every other year to take care of the new members of the department? According to the present system the employes of the Department of Public Health are engaged on an indefinite tenure basis, being removed from office only on the grounds of unsatisfactory service. For that reason it is quite obvious that students now attending the school who will be granted their diplomas at the end of this school year will not register for another year's complete course and because of the indefinite tenure appointments there will not be a sufficient number of new students to justify the maintenance of the school. Economically it would be inadvisable to maintain the school for only 10 students. So the future of the school depends upon the answer to this question: How can it be established on a permanent basis?

Dealing in Medical Legislation in Illinois—An interesting and valuable description of the successful methods employed by the Illinois State Medical Society to secure favorable legislative action on matters of importance to the medical profession is given by Dr. J. R. Neal in the American Medical Association *Bulletin* for February, 1926. This article is one which can be commended to sanitarians as a useful outline of how to lobby for public health. Lobbying is supposed by some to be a particularly iniquitous pursuit, though whether it is or is not depends upon the object sought. If it is a selfish, mercenary, or narrow one, not for the good of the public, lobbying may be evil, but if, as in the case of the public health, the goal is the common welfare, then lobbying is far from being meretricious. The trouble is that there is not enough skilful lobbying for public health measures.

Dr. Neal in his paper states that an endeavor is made to reach the legislator from back home and not at the Capitol. There is an outpost in the latter place, but its duty is to keep informed the legislative committees of the districts and to guide them in their actions. Immediately after a member of the legislature is elected, the district councillor of the medical society selects a committee of physicians whose job it is to see that the legislator is properly educated regarding medico-political matters. A card index is kept of all members of the legislature. This procedure solves the problem of organization. A lay education committee also helps to arouse interest throughout the state.

The state legislative committee, as part of its function of information, sends to all local groups a weekly digest of bills of interest. Thus, the local committee can intelligently approach the senator or representative on medical matters. As Dr. Neal well says, "Legislators are politicians and seek popular favor and are ever ready to listen to advice from their own voting districts." Dr. Neal believes that the average legislator is desirous of acquitting himself creditably in his public duties and that he will do so if given a proper opportunity to see the right way.

Dr. Neal's paper, which was read before the annual conference of state medical associations last November, provoked a great deal of valuable discussion. There was general approval of the methods outlined. One point brought out was that it is not absolutely necessary to elect physicians to the legislature to look after medical interests, though one in each house is desirable, but that it is more important to elect lay friends of the medical profession. Then the problems of the cults and other detriments to scientific progress and the advancement of public welfare can be properly dealt with.

J. A. T.

STUDIES ON LACTOSE FERMENTING BACTERIA *

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THE FUNDAMENTAL investigations of Rogers, Clark and Evans [1] on the classification of members of the colon-aerogenes group and the subsequent studies of Clark and Lubs,[2] and Levine [3] on the application of the methyl red and Voges-Proskauer reactions, added an important chapter to our conception of this group of bacteria. Doubtless there was considerable hope among water analysts that these results might prove of much practical value in estimating the sanitary quality of water supplies. It is doubtful, however, notwithstanding the fact that the Standard Methods Committee [4] included the tests in their 1917 report and have continued them in later reports, whether, with the exception of research studies, any extended application has been made of the tests in laboratories required to make routine analyses and to pass opinion on the sanitary quality of individual samples of water.

Principal among the reasons why there has not been a more general adoption of differential tests may be mentioned: first, the lack of close agreement in the results of different investigators and the failure of these results to correlate with the sanitary survey of water supplies; second, failure of the various cultures isolated from water to conform to the two groups defined as fecal (MR+ VP—) and soil (MR— VP+). The lack of close correlation with sanitary surveys would seem to be fundamentally the most important objection.

Levine [5] in an excellent review of this subject discusses the results of all except a few studies of this kind and summarizes the situation as follows: "If . . . the coli and aerogenes sections are so characteristically of different origin, should we not expect a correlation of the sanitary survey with the type of colon bacillus found in a water? Reliable information in this matter would certainly be a great aid in the interpretation of water analyses." And again, "It is felt that the relation of the sanitary survey to the type of colon bacilli present in water, particularly well supplies, is in need of considerable investigation. The lack of correlation in the vicinity of New Haven reported by Winslow and Cohen is difficult to reconcile with the observations of Stokes in Maryland and Wood in England. Possibly local conditions, if taken into proper consideration, may explain the seeming discrepancies."

Subsequent to Levine's summary [5] several investigations have been made with results which do not differ markedly from those in previous studies. For example, Bahlman and Sohn [6] in their studies of 1,223 cultures at the Cincinnati Water Purification Works found no apparent correlation of "rainfall and high river stages with the relative abundance of coli and aerogenes," nor "did the degree to which the water was purified have any bearing upon the incidence of these two sub-groups." These investigators found that 53 of their 1,223 cultures, "survived the invigoration and replating processes and remained atypical in apparently pure culture." This failure to reduce all cul-

* This paper, covering the Correlation of Methyl Red and Voges-Proskauer Reaction of Colon Group Bacteria with Sanitary Survey of Well Waters, is the first of a series of papers to appear in the JOURNAL.

tures to the recognized groups was also emphasized by Perry and Monfort,[7] who thought that "further study of these variants prior to rejuvenation is essential to their correlation with known pollution." Cunningham and Ragavachara[8] in a very extensive study of the waters in India report 30.6 per cent, 25.5 per cent, and 31.9 per cent "MR— VP+" types in 2,455 cultures from rivers, impounded surface water, and springs and wells respectively. They state, "there is no substantial difference to be found in the distribution of the two groups if the samples are divided according to their source." Koser[9] in a comparison of the methyl red and Voges-Proskauer reactions with growth in his citrate medium as applied to cultures from polluted river water, and water of high sanitary quality, found but a slight difference in the percentage of "MR+ VP—" cultures in the two types of water. He remarks "If we are to consider all methyl red positive and Voges-Proskauer negative cultures as indicating intestinal origin then we must conclude that about the same proportion of fecal cultures may be found in both polluted and unpolluted samples."

Although a wide variety of water samples have been included in many of these investigations, there have been apparently few studies attempting to correlate the sanitary survey and distribution of coli and aerogenes on a representative group of wells or an attempt to apply these tests to particular types of wells used as private or public supplies except the investigations by Wood[10] and Stokes.[11] The former felt that there was a correlation between the aerogenes and sanitary survey in 66 samples but he does not state definitely how the differential tests correlated with sanitary survey in the remainder of his samples. Wood thought his results were significant and suggests that this differentiation be employed in routine examinations of water and food products. Stokes unfortunately was unable to complete his studies by correlating his results with the sanitary survey of wells. He found only one low-ratio organism in 14 samples from artesian wells, but he was doubtful whether the differential tests would be practical in routine analyses, principally because it would be necessary to study so many cultures from each sample.

In view of the foregoing, we are presenting the results of two studies of this type which have been made on carefully selected samples. The two series consist of samples from ground water supplies in an urban and in a rural community and these are representative of such supplies in Ohio. The laboratory studies vary slightly in the two series because several years elapsed between them.

The differential tests applied to the first or urban series were confined to the methyl red and Voges-Proskauer reactions. In the rural series we gave first attention to these two reactions because we thought the correlation of these with the sanitary survey was of prime importance. Later, the cultures isolated in the rural series were tested for indol production. This test was used in preference to Koser's uric acid medium because the latter had shown very close correlation with the methyl red and Voges-Proskauer reactions, and, with a limited time available for testing the freshly isolated cultures, it seemed more desirable to utilize the indol test since so much importance has been attached to it by English analysts.

Subsequent to our studies of the two series just described, Koser recommended his citrate medium,[12] and we began a similar study of a much larger number of wells with special reference to the correlation of the citrate medium with the methyl red and Voges-Proskauer reactions and the sanitary survey of the wells. The latter results are the subject of a separate report.

SAMPLES FROM URBAN SUPPLIES

The 198 samples in this series were collected in a village with a population of

TABLE I

DISTRIBUTION OF "MR+ VP—" CULTURES IN WELL WATERS OF DIFFERENT SANITARY QUALITY

Field grade	Total No. wells	Wells giving confirmed test for Bact. coli		Total cultures	MR+	Per cent	VP—	Per cent
		Number	Per cent					
Good	78	20	25.7	40	33	80.2	31	77.5
Fair	90	20	22.2	41	33	80.4	31	75.6
Poor	30	13	43.3	27	24	88.8	25	92.5

about 1,000 and they represent all except 4 wells in the village. All samples were collected by R. S. Durrell, Assistant Engineer of this department, after a careful sanitary survey in which he classified the supplies as "good," "fair," and "poor," on the basis of their location and development. Samples were delivered to the laboratory as promptly as possible. Whenever the interval between the collection and the examination was more than a few hours, the samples were kept on ice. In several instances check samples were collected from supplies in question.

METHODS OF EXAMINATION

Bacteriological examinations were made according to Standard Methods. In addition to the routine tests, a separate set of presumptive tests were made in lactose peptone-bile, and an Endo plate was made, using 1 c.c. of the sample. In selecting colonies from the Endo plates made either from the sample or from the presumptive tubes, an effort was made to select representatives of the different types of colonies. First, attention was given to colonies which gave a typical *Bact. coli* reaction and appearance, but whenever other types were present, one of each was selected for subsequent study. These colonies were fished into lactose broth for confirmatory gas. Agar slants were prepared from the confirmatory tubes which proved positive, and at the same time dextrose broth was inoculated for testing the methyl red and Voges-Proskauer reactions.

Table I shows the total number of samples under each of the groups established by sanitary survey, also the number which gave a confirmed positive test for the colon group, and the relative distribution of the so-called fecal types (MR+ VP—) in the different grades of wells.

It will be seen that the percentage of MR+ and VP— cultures show a fairly close correlation of these two tests. Further, it will be noted that there is no great difference in the distribution of the fecal (MR+ VP—) type in the three classes of waters. One cannot, of course, make direct comparisons between these results and those found in studies where grossly polluted supplies and waters of excellent quality were used as extremes, because even though some of our wells were classed as "poor" they still were within reasonably safe limits for drinking water, and were being used for that purpose at the time of sampling. It would not be expected, therefore, that one would find quite so high a percentage of fecal types in any of our samples in this series as would be found in rivers or other grossly polluted water. It is surprising, however, to note the high percentage of this type (MR+ VP—) in well waters classed as "good" and "fair" by the sanitary survey.

We found very little difference in the percentage of coli and aerogenes types isolated from presumptive tubes positive in 24 hours, and those positive in 48 hours. This would indicate that there is not so much tendency to overgrowth of one type or another as has been suggested by some investigators.

COMPARATIVE TESTS WITH LACTOSE BROTH AND LACTOSE BILE

Ritter [13] in a comparison of lactose bile and lactose broth on surface waters found when lactose broth alone was positive in the presumptive test about 70 to 78 per cent of the tubes were "proved not to contain *B. coli*." Our results in numerous

routine samples of ground waters have shown that a very much smaller per cent of the positive lactose broth presumptive tests fail to confirm, and it was found in this series of well waters that Ritter's percentages were practically reversed. We found that while a higher per cent of the presumptive-positive bile tubes were confirmed, 36 out of 42, as compared with 44 out of 66 positive lactose broth presumptives, the latter actually gave a larger number of positive colon tests in the "good," "fair," and "poor" quality waters; a total of 44 positive results being obtained in broth and 36 in bile. Furthermore, the relative number of "MR+ VP—" cultures was about the same in both mediums. It appears, therefore, that lactose broth detects more colon group organisms in ground waters of "good," "fair," and "poor" quality, and that this excess of positive colon results is not altogether due to non-fecal varieties, a condition which we thought might be found. Our results seem to further confirm Jordan's conclusion that bile is inhibitive to a certain per cent of colon bacteria. Also our experience in finding about the same number of fecal and non-fecal types on plates from broth or bile apparently conforms with the experience of others. For example, English investigators, Wood,[10] and Cunningham and Ragavachara,[8] using bile-salt media report about the same general percentages of the two types as were found by Winslow and Cohen and other American investigators in similar waters but using media containing no bile.

RURAL SUPPLIES

The work included in this series was part of a program of water supply survey in a county health demonstration. A careful survey was made of the wells in one township and samples were collected in duplicate from each well. All bacteriological examinations were made according to Standard Methods.

A total of 89 wells were examined. These were classified by field sanitary survey and type of well as follows:

TABLE II

Field Survey	Total wells	Drilled		Dug	
		No.	Per cent	No.	Per cent
Good	30	21	72.0	9	15.0
Fair	29	4	13.7	25	41.6
Poor	30	4	14.3	26	43.3
		29		60	

Examined in the routine manner for the colon group, the samples from these supplies gave the following results:

TABLE III

Colon group	Drilled		Dug	
	No.	Per cent	No.	Per cent
Pos. 1 and 10 c.c...	6	21.4	43	70.4
Pos. 10 c.c. only...	6	21.4	14	22.9
Neg. 1 and 10 c.c...	16	57.2	4	6.7
	28		61	

These figures show about what one would expect in the two types of wells, namely, a relatively high percentage classed as "good" in the drilled wells, both by sanitary survey and the colon test, and the reverse of this condition in the dug wells which are often poorly located and constructed.

DIFFERENTIAL TESTS

A correlation of colon-group results, and methyl red and Voges-Proskauer reactions with the sanitary survey is shown in Table IV. The result of the indol tests on these cultures is also included in this table. The figures represent combined results from the drilled and dug wells.

It is apparent from these results that there is about the same correlation of the methyl red and Voges-Proskauer tests with source of the samples, as was found in the urban series (Table I). Also it

TABLE IV

Field grade	Total samples	No. containing colon bacteria in 10 c.c. or less	Per cent	Total cultures isolated	MR+		VP—		Indol+	
					No.	Per cent	No.	Per cent	No.	Per cent
Good	60	14	23.3	53	36	67.9	36	67.9	22	41.5
Fair	58	23	39.6	76	61	80.2	59	77.6	34	44.7
Poor	60	28	46.6	100	92	92.0	86	86.0	62	63.0

will be noted that while the total percentages of indol-positive cultures are considerably lower than the percentages of methyl red positive and Voges-Proskauer negative cultures, the degree of correlation of the three tests with sanitary survey is about the same. The actual differences in the percentages of fecal types in "good" and "poor" wells as determined by methyl red, Voges-Proskauer, and indol tests are 24.1, 18.1, and 20.5 per cent respectively. Approximately the same difference is noted between the confirmed *Bact. coli* tests on the "good" and "poor" types of water.

Somewhat more striking figures were obtained when we considered the results on the drilled wells alone, for in these we presumably had few waters that were seriously polluted. Especially in the drilled well supplies graded "good" in the field we should expect a minimum of fecal types. Actually, however, we found that 16 of the 21 cultures isolated from drilled wells graded "good" by field survey and found to contain colon-group organisms, were "MR+ VP—." This would seem to be the strongest evidence in this study against the specificity of either of these tests in representing fecal contamination.

COLON GROUP RESULTS COMPARED WITH COUNTS AT 20° AND 37° C. AND WITH SANITARY SURVEY

It was customary in this laboratory until recently to make counts on agar at both 20° and 37° C. on all water samples. However, we noted so many instances in which there was such a complete lack of correlation between these counts and the colon results that we discontinued the 20° C. counts on samples from private supplies, believing that the results were of little value in estimating the quality of the water. Considerable attention was given to this question and while it does not seem necessary to include the tabular comparison of these figures, it may be of interest to note the general summary from these tables.

We found that in 233 samples from urban private supplies and 178 samples from rural supplies, the percentage of low counts (less than 100 per c.c.) at 37° C. in the "good" wells containing colon group bacteria was about the same as the percentage in the same type of wells which were negative for colon group organisms, viz., 83 per cent and 88 per cent respectively. Also in the "poor" type wells the percentage of low counts (less than 100 per c.c.) at 37° C. was rather high even in samples containing *Bact. coli*. Furthermore the percentage of samples giving less than 100 bacteria per c.c. on agar at 20° C. was practically the same in "good," "fair," and "poor" wells. Although each sample must be interpreted individually, and totals or averages of groups of samples may be misleading in some respects, we believe, nevertheless, that in examining private supplies neither the 20° nor 37° C. counts add much to our knowledge of the sanitary quality of the water, and that the time spent in making such counts could be used to better advantage in the estimation and study of any lactose fermenting types present in the water.

SUMMARY AND DISCUSSION

A total of 287 well waters varying in sanitary quality, as determined by careful survey of the source, from "good" to "poor," were examined for colon bacilli with particular reference to the value of the methyl red and Voges-Proskauer reactions. A majority of these wells (198) were located in a village and therefore were probably subject to more direct contamination with human discharges because of the proximity of outdoor toilets on the same or neighboring lots. The remainder of the wells (89) were in a rural district where the danger of contamination with human discharges would probably be less but the danger from animal discharges greater than in the village wells. The percentages of methyl red positive and Voges-Proskauer negative cultures in the urban and rural wells were

practically the same. It is understood, of course, that no claim has ever been made that these two tests would distinguish between human and animal discharges, but it was thought that possibly some difference might be found in the relative numbers of fecal and soil types in the two groups of wells.

There was an appreciable difference in the percentage of so-called "fecal" types in the "good" and "poor" wells in each series. This difference was apparent to about the same degree on the basis of the methyl red, the Voges-Proskauer, and the indol test, and it agreed rather closely with the difference in percentage of confirmed colon tests in the respective wells. It is difficult to place a strict interpretation on these figures because there is no established scale of expected frequency of the fecal and soil types as we progress from a grossly polluted water to one of excellent quality. The important point is whether too many "good" wells show fecal types as established by the differential tests. The percentage of fecal types in the "poor" wells is of minor importance, for these supplies would be condemned on the sanitary survey alone.

The striking feature of the results in both rural and urban wells was the number of "MR+VP—" cultures in the "good" wells, and particularly in the "very good" drilled wells. It is scarcely conceivable that 70 per cent of the colon group bacteria in these supplies are actually of fecal origin. The only satisfactory explanation which conforms with our conception of safe well water, as determined by field sanitary survey, is that many of the cultures constituting this 70 per cent are soil types and are therefore of slight sanitary significance. This confirms Koser's conclusion based on his sanitary survey of the waters he examined and on comparative tests with his citrate medium.

Without attempting to attach too much importance to the indol results in this series it is perhaps worth noting that the lower percentage of indol positive cultures correlates more closely with the sanitary survey than does either the methyl red or Voges-Proskauer reaction.

CONCLUSION

Absence of methyl red positive and Voges-Proskauer negative members of the colon group in ground waters of good sanitary quality is significant, but the presence of this type in such waters cannot be regarded as conclusive evidence of fecal contamination. These differential tests, therefore, have very limited value in the analysis of well waters.

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ANAEROBES IN SEWAGE*

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THE ANAEROBES most commonly present in sewages, and sewage effluents and sludges are *Cl. welchii* and *Cl. sporogenes*. *Cl. tetani* and *Vibrion septique* are sometimes found, but cannot be regarded as common members of the anaerobic flora. Since my previous report [1] new methods have been developed for the estimation of the numbers of *Cl. welchii* and *Cl. sporogenes*.

CLOSTRIDIUM WELCHII

The sample of sewage, sludge, or effluent was heated to 80° C. for 20 minutes. A 1 c.c. portion and 1 c.c. portions of a series of decimal dilutions of the sample were then added to duplicate tubes of sterile milk, sealed with vaseline and incubated at 37° C. for 48 hours. At the end of this time the tubes containing the least amount of original sample and showing typical stormy fermentation of milk, were noted. From the dilution the number of organisms per gram of sample was computed.

The presence of *Cl. welchii* was confirmed in the following manner: Inoculations were made from the typical milk cultures to maltose broth. The tubes of maltose broth were sealed with vaseline and incubated at 37° C. *Cl. welchii* grows rapidly in this medium.[2] Several serial transfers were made in maltose broth during the first 24 hours. At the end of this time liver agar shake cultures were prepared and incubated over night. Single colonies were then transferred to tubes of maltose broth. The process was then repeated until apparently pure cultures of *Cl. welchii* were obtained as judged by cultural and morphologic characteristics.[3, 4, 5, 6, 7]

CLOSTRIDIUM SPOROGENES

A medium prepared as follows was found to be highly selective for this organism: Nutrient broth was rendered sugar free by inoculation with *Cl. welchii*. The broth was then sterilized, filtered and adjusted to pH 7.2–7.4. Two well beaten eggs were added to each liter of the broth and well mixed with an electric stirrer. The medium was then tubed and sterilized in an Arnold on 3 successive days.

Cl. sporogenes gives a characteristic reaction in this medium. The coagulated egg white is completely liquefied, leaving a clear fluid in which particles of yolk are suspended. None of the more common anaerobes give this result. However, a similar reaction was obtained with *Cl. botulinum B* after 5 days' incubation.

For determining the number of *Cl. sporogenes*, samples of 10 c.c., 1 c.c., and 1 c.c. portions of decimal dilutions were added to duplicate tubes of the medium. The tubes were then heated at 80° C. for 20 minutes, cooled and sealed with vaseline. After 3 days' incubation at 37° C., the tubes containing the least amount of the samples and showing typical liquefaction were noted and the number of *Cl. sporogenes* per gram sample was computed.

For confirmation of the presence of *Cl. sporogenes*, inoculations were made into a second set of tubes of the egg medium. After 3 days' incubation, liver agar shake cultures were prepared from tubes showing typical liquefaction. The liver agar cultures were incubated for 24

* The first article of this series appeared in the JOURNAL for October, 1925.

RESULTS OF TESTS MADE AT CALUMET SEWAGE TREATMENT PLANT

Foul Sewage
Cl. welchii, 100 to 10,000,000 per g. Median 100 per g.
Cl. sporogenes, 10 to 10,000 per g. Median 10 per g.

Aeration Tanks—Activated Sludge Process
Cl. welchii, 100 to 10,000,000 per g. Median 100,000 per g.
Cl. sporogenes, 10 to 100,000 per g. Median 1,000 per g.

Imhoff Sludge—wet
Cl. welchii, 1,000 to 1,000,000 per g. Median 100,000 per g.
Cl. sporogenes, 100 to 100,000 per g. Median 1,000 per g.

Imhoff Tank Effluents
Cl. welchii, 1 to 10,000 per g. Median, 1,000 per g.
Cl. sporogenes, 1 in 10 g. to 100 per g. Median 100 per g.

Sprinkling Filter Bed
Cl. welchii, 1,000 to 1,000,000 per g. Median 10,000 per g.
Cl. sporogenes, 1 in 10 g. to 100 per g. Median 100 per g.

Sprinkling Filter Effluent
Cl. welchii, 10 to 1,000 per g. Median 100 per g.
Cl. sporogenes, 1 in 10 g. to 100 per g. Median 10 per g.

Pressed and Dried Activated Sludge
Cl. welchii, 1,000 to 100,000 per g. Median 1,000 per g.
Cl. sporogenes, 10 to 100,000 per g. Median 1,000 per g.

hours and typical "woolly" colonies transferred to the egg medium. This process was repeated until apparently pure cultures of *Cl. sporogenes* were obtained.[4, 5, 6, 7, 8]

The agglutination reaction was also used to identify cultures of *Cl. sporogenes*. Immune sera prepared from single cell stock strains failed to agglutinate the organisms isolated from sewage when dilutions of 1 to 80 or greater were used. Sera were therefore prepared with 3 sewage strains. Immune serum from one of these strains agglutinated most of the cultures isolated from sewage. Some cultures were agglutinated by the other sera while some were unagglutinable.

EXPERIMENTAL DATA

All samples for this study were collected at the Calumet Sewage Treatment Plant, Chicago, Ill. Samples were taken as follows: foul sewage (11 samples), aeration tank-activated sludge process (18 samples), Imhoff sludge-wet (12 samples), Imhoff tank effluents (9 samples), sprinkling filter bed (6 samples), sprinkling filter effluent (6 samples), and pressed and dried sludge (4 samples). These sources include most of the steps in the treatment of sewage at the plant.

The samples were collected during the fall and winter months of 1924–25. Organisms were found in these samples as shown above.

SUMMARY AND CONCLUSION

The numbers of these organisms varied over a wide range for each type of sewage examined. *Cl. welchii* was consistently more numerous than *Cl. sporogenes* in every step of the processes in the treatment of sewage at this plant. These organisms were most numerous in the sludges, less numerous in the foul sewage and least numerous in the effluents. Large numbers of these organisms survive in the activated sludge after being pressed and heated in a drying oven. These organisms are abundant in the scum on the stones of the sprinkling filter bed.

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PNEUMONIA FROM A PUBLIC HEALTH VIEW POINT*

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BECAUSE of its general acceptance in this sense, the word "pneumonia" is here used synonymously with the term "the pneumonias" or pneumonitis, and with no attempt at anatomical subdivision or division due to a known pathogenic causative factor, or whether or not the pneumonia present is a primary disease, secondary, complicating or terminal in an existing trauma or disease. It is not to be regarded as implying a single, specific disease in the same sense as measles, typhoid fever, etc., that is, we believe pneumonia is not due to a single, specific virus or microörganism, but may be caused by any one or combination of a number of pathogenic bacteria, which grow, multiply and set up an inflammatory reaction in lung tissue. It should, therefore, be considered as a closely related group of acute, constitutional diseases, all having in common as a local manifestation an acute, inflammatory process in the lungs.

Pneumonia is an endemic disease practically everywhere in the world, temperate and tropical countries suffering at all times from it, though not all countries to the same degree. The virulence of the endemic pneumonias is not the same in all countries, nor in all parts of a country; nor is it the same in every year. Pneumonia is a seasonal disease; the morbidity usually increases in all countries in the cold or wet seasons. Vaughan and Palmer call attention to the fact that respiratory disease is more common in urban than rural communities, the percentage of pneumonia deaths in cities being about 50 per cent greater than in rural districts.

Hippocrates wrote specifically on peri-pneumonia, its symptoms, and his experience that cold, northerly winds seemed to be a cause of disorders of the chest. Galen refers to peri-pneumonias and pleurisies. The contagiousness of pneumonia seems to have been recognized as early as 1497 by Savonarola of Venice. The Englishman, Dunns, in 1592, wrote that peri-pneumonia is a contagious disease, because he observed that it attacked many in the same family.

Epidemics of pneumonia have occurred frequently, from the most remote times in medical literature to the present. Ravicio, in 1613, stated that peri-pneumonia constituted a malignant epidemic and was highly contagious. Hirsh furnishes abundant evidence in his *Geographical and Historical Pathology* regarding epidemics of pneumonia. In this country, many epidemics of pneumonia are recorded, beginning with that of Waterbury, Conn., in 1712, and Hartford, Conn., in the winter of 1719–20. During the World War, in our cantonments, pneumonia was very prevalent and fatal. During the winter months of 1917–18, 13,393 soldiers were sick with pneumonia with 3,110 deaths, a 23 per cent case mortality.

In the United States, pneumonia ranks first in the list of acute, communicable diseases as a cause of death. In order to help us visualize the importance of pneumonia in this respect, let us take from the last report of the United States Public

* Read at the Joint Session on Epidemiology of the American Public Health Association at the Fifty-fourth Annual Meeting at St. Louis, Mo., October 22, 1925.

Health Service a short list of the common infectious diseases, with a total number of deaths due to each in the United States in 1923:

Infectious Diseases	Deaths
Scarlet Fever	3,449
Typhoid Fever	7,961
Whooping Cough	8,999
Measles	10,399
Diphtheria	12,705
Pneumonia	121,572

From a public health point of view, it really makes but little difference whether or not a pneumonia is lobar or broncho, primary or secondary, or due to the pneumococci, streptococci or any other pathogenic microörganism, as in all cases the pathogenic organisms are being continuously thrown out by the sick person, principally by coughing, sneezing and spitting, and when they reach the body of any well person, either by direct or indirect contact, are capable of and frequently do cause that individual to become sick in the same manner.

Dr. Victor C. Vaughan, in Vol. 1, *Epidemiology and Public Health*, 1922, states: "All students of epidemiology recognize that the pneumonias are infectious diseases, and they are disseminated by spitting, sneezing and coughing."

Dr. Milton J. Rosenau, in *Preventive Medicine and Hygiene*, 1922, states: "Lobar pneumonia is a communicable disease which should be classified with the infectious fevers."

We believe these statements of Drs. Vaughan and Rosenau to be correct, and that they are so accepted by the great majority of the medical profession. However, there are many unknown laboratory, environmental, personal and climatic factors regarding the epidemiology of this group of diseases; also, there are statistical factors that make comparative study very difficult, but, notwithstanding our lack of knowledge regarding many probable factors in the epidemiology of pneumonia, we believe sufficient data have accumulated to warrant one definite step in the control of this group of diseases: isolation of the patient and a modified quarantine of the premises.

Not only do we believe this step to be beneficial in the prevention of pneumonia infections due to direct and close indirect contact with a pneumonia patient, "many such fatal cases being matter of record in the Department of Public Health of the city of Pittsburgh," but also beneficial in preventing the primary infection that terminated in a case of pneumonia, when such is the case in a pneumonia patient.

In inaugurating pneumonia (all forms) isolation and quarantine in the city of Pittsburgh on April 1, 1924, it was appreciated that no more can be expected from quarantine in pneumonia than from quarantine in other communicable diseases such as scarlet fever and diphtheria; and while we believe that house quarantine alone is not capable of completely eradicating any of the acute, communicable diseases, it is of very great value in that it prevents many persons from becoming sick who otherwise would contract the disease.

However, this is not the only reason, perhaps not the greatest reason, for isolation of the patient and modified quarantine of the premises when a case of pneumonia occurs; in fact, we believe this regulation should be regarded only as the first step in a program of pneumonia control; the second step being to arouse interest in the general public and the medical profession regarding the subject of pneumonia prevention; and the third step, an earnest, scientific study of all the now unknown factors in this problem. But unless a community knows the number, and the time and place of its pneumonia cases, it is not in a position to properly study the subject; and unless pneumonia is both reportable and quarantinable in a community, because of very practical reasons, that community is not likely to have this information.

In the city of Pittsburgh, the regulation covering reports of cases of pneumonia was made all inclusive in order to avoid

any loophole for failure to report any case, and is as follows: "Pneumonias (all forms) are reportable diseases in the city of Pittsburgh; specify: (a) lobar pneumonia; (b) broncho pneumonia; (c) pneumonia complicating influenza; (d) pneumonia complicating other communicable diseases; (e) all other pneumonias, as traumatic, anesthetic, senile, etc.; specify whether lobar or broncho pneumonia in all of the above primary conditions."

Actual quarantine in certain types of cases is optional with the department of public health; also, our quarantine regulation is very moderate and is as follows: "Modified quarantine will be enforced in all cases of pneumonia, except that under the above classification (e) ["All other pneumonias, as traumatic, anesthetic, senile, etc."], may be quarantined at the option of the Department of Public Health. This modified quarantine will consist of placarding, isolation of patient, prohibition of all visitors; but no restrictions on other members of the household, including school children, providing isolation is complete and instructions from the Department of Public Health properly carried out. Quarantine period until recovery or death of patient."

Complete sanitary cleaning of the premises, as an appended regulation, is required before release, but when this is accomplished thoroughly in a fatal case, no funeral restrictions are made. We have not incorporated regulations governing pneumococci carriers or laboratory release regulations; this may be a desirable later step, but because of its apparent beneficial result and the unanimous endorsement of and support by the general public, the medical profession and the hospitals of the city of Pittsburgh, we are satisfied with our present pneumonia quarantine regulation and shall continue indefinitely. Our first year's experience shows a reduction of 245 deaths from pneumonia as compared to the previous year, and we believe this was partly due to the attempt at pneumonia control.

In the space allowed, it is impossible to attempt more than a mere sketching of a program for the study of the pneumonia problem. We believe this study includes two very distinct sides: first, the medical problem, including (a) clinical study, (b) bacterial and pathological study, (c) modes of transmission of the infection, (d) relation of primary diseases to a case of pneumonia, (e) fatigue and so forth; and second, an engineering problem, including all of the environmental, predisposing factors such as (a) crowding in home or workshop, (b) general home and workshop sanitary conditions, (c) the exclusion of beneficial, bactericidal sun-rays through fogs, smoke, etc., (d) gas heating stoves, (e) ventilation and humidity of homes and workshops, (f) crowding in transportation, (g) air pollution, (h) climatic data, and so forth.

We believe that all influences depressing to life, such as exposure, excesses, fatigue, overwork, bad housing, the air of badly ventilated and crowded rooms, insufficient food, loss of sleep, lack of exercise, overheated living quarters, etc., are factors in the production of pneumonia; also, the pneumonias attack frequently where other diseases or conditions have lowered bodily resistance to infection as colds, influenza, measles, whooping cough, typhoid fever and other infections; after trauma, alcoholic abuse or local irritation; and is frequently terminal in chronic heart disease, pulmonary tuberculosis, Bright's disease, diabetes, senility, etc.

Climate ranks high in evaluation as a contributing cause in acute respiratory diseases; not so much the general mean temperature or moisture rate, but the strictly local situation relative to quick changes in temperature, alternating cold rains and sunshine, snow and sleet, dry cold quickly changing to moderate temperature with slushy, wet streets, all predisposing factors in the production of common colds.

Many physicians believe that all pneumonias are simply the terminal condition

to a preceding infection, while other physicians do not accept this extreme view. This is one important item in a study of pneumonia, and it appears that a careful check on the personal history of pneumonia patients will reveal a very large percentage of common colds, so-called grippe, "flu" or influenza just prior to the onset of pneumonia.

In Pittsburgh, the city nurse obtains some information relative to the case history in all pneumonia patients treated in their homes, and during our first year of pneumonia quarantine 2,507 cases were so investigated. Of these cases, 1,792 (or 71 per cent) did have such a case history, and in 715 cases (or 29 per cent) no such history was obtained, indicating these latter cases to be primary diseases ["all cases of pneumonia occurring during an attack of any other quarantinable disease as measles or whooping cough are not considered in this group"].

The United States Public Health Service is now conducting a study of common colds, and its preliminary report states that in the United States the average number of common colds per person per year is not less than three; also, that there seems to be a much closer relationship between common colds and influenza than we have heretofore thought to exist.

All of this is interesting in a study of pneumonia, because of the fact that common colds, influenza and the so-called "flu" and grippe cases are so frequently the primary diseases to which pneumonia is terminal. A thorough study of this subject would not only attempt to clear up the true relationship between pneumonia and these primary conditions, but would also attempt to determine the true relationship within this group, together with its epidemiology.

The laboratory study should include: (a) bacterial work on all cases of pneumonia reported, whether treated in the home or hospital, and special study on groups of cases traced to a single source; (b) bacterial study in controlled groups of common colds, influenza, etc.; (c) pathological study through the conduction of post-mortem examinations whenever possible; (d) experimental animal study of injurious effects on respiratory mucous membrane of the items in the insoluble and soluble ash deposits, gases, acids and so forth in our air pollution problem.

In this problem of air pollution very much indeed may be learned. We are only beginning to appreciate the fact that all of our laws attacking excessive volumes of black smoke only touch the surface in air pollution; in all probability much more harm is done from a public health point of view, to citizens in our cities by other items than black smoke.

In Pittsburgh, Mr. H. B. Meller, Fellow of the Mellon Institute for Industrial Research, reports an annual deposit per square mile of 1,400 tons of insoluble ash, composed very largely of sharp-cornered particles of coke and other materials, and, in addition, large quantities of soluble matter and irritating gases and acids. The same situation, though perhaps in lesser degree, must prevail in all other cities, and in all probability constitutes an important factor in the problem of pneumonia and other diseases of the respiratory tract.

While we feel certain that the pneumonias and other acute respiratory tract diseases are frequently spread by coughing, sneezing and spitting by the patient, with the contagium passed to another by direct or close indirect contact, there are so many unknown or suspected personal factors involved that a complete study regarding these possible factors in each case should be made. If, as is believed by many, pneumonia is most frequently only a terminal condition to a previous infection, such as a common cold, etc., then tracing back not only to direct or indirect contact with a previous case of pneumonia is necessary, but also whether or not this contact occurred with one sick with a common cold. The possibilities of this contact with all of us is probably of

daily occurrence, particularly in the winter, and, regardless of where we go or what we do, we are frequently so exposed.

Eating of raw unwashed fruits, etc., may account for many colds through contagium deposited on the fruit; and we believe the habit of hand-shaking to probably account for many; in fact, this last item of hand-shaking may prove to be our most common medium of exchange of pathogenic bacteria. It has been well said, "if saliva was colored blue, we would all have blue fingers continuously." Centuries ago, the extension of the right hand spelled security, as it proved no concealment of a weapon; today, the extension of a right hand frequently spells sickness and death through a mutual exchange of saliva with its ever-present luxuriant flora of pathogenic bacteria.

At the present time, a comparative statistical study of the pneumonia situation, as between communities, is almost hopelessly unsatisfactory, because, when the law or regulation makes reportable a disease that is not quarantinable, the morbidity reports of that disease will be far from complete. This has been particularly true in the United States regarding lobar pneumonia morbidity reports. In this case, in addition to the lack of a quarantine regulation, "which certainly acts as a stimulant to proper reporting," it was necessary for the physician to sign his name to a positive differential diagnosis as between lobar and broncho pneumonia, something that is frequently very difficult to make, particularly early in the disease; the practical result being a postponement in reporting the case, with frequent neglect to report at all in a case that recovers, and sometimes even in a fatal case. The true pneumonia morbidity, therefore, has not been and is not now known in most of our cities or states.

Comparative statistical study on pneumonia mortality is also unsatisfactory, but for a different reason; death reports are made complete in practically all communities, but we have not yet learned to properly use the International List of Causes of Death, and today, undoubtedly many deaths are charged to pneumonia that are properly chargeable to a primary disease or condition. Perhaps also the reverse occurs at times, but stimulation of interest in the general public and medical profession, together with quarantine regulation, will very materially improve this situation.

We believe the time is here for a determined attack on the pneumonias; we also believe the three steps outlined can be successfully inaugurated in most communities with immediate and lasting benefit; and we further believe that the final result of such an attack by all of the public health forces, will result in a reduction of our pneumonia death rate comparable with many of the past successes in preventive medicine.

HEALTH OFFICERS' DAY AT ATLANTIC CITY*

AN ENTIRE DAY, Friday, May 21, has been set aside at the American Health Congress at Atlantic City for the discussion of "Community Health Organization." Leaders in public health from the north, east, south and west and several provinces in Canada will come together to discuss for the first time the plans of public health organization which have been put forth by interested agencies within the last 4 years. A joint program has been arranged by the American Public Health Association and the Conference of State and Provincial Health Authorities of North America, representing the health officers; the National Organization for Public Health Nursing, representing the public health nurses; and the American Child Health Association, representing the private organization.

This is an unique opportunity for sanitarians and public health officials to pool their problems and their findings in a community public health service program —city and rural. Three plans for community organization recently developed and tried out by several agencies are applicable to cities of 100,000, 50,000, and 20,000 population. Hugh S. Cumming, M.D., Surgeon-General, U. S. Public Health Service, Washington, D. C., is honorary chairman of this meeting. The 3 health organization plans will be presented by Henry F. Vaughan, D.P.H., Commissioner of Health, Detroit, Mich., and they will be discussed in detail by representative health officers. The discussion of these plans will be summarized by Matthias Nicoll, Jr., M.D., State Health Commissioner of New York; Richard M. Olin, M.D., State Health Commissioner of Michigan; and E. L. Bishop, M.D., State Health Commissioner of Tennessee.

The similarity of the 3 plans, the personnel required for each method of procedure and the cost of operation are questions to be raised. City and rural community organization will be approached from every angle, infant welfare service, public health nursing, school health service, sanitary service, communicable diseases and health education, each subject to be presented by a specialist. How private organizations, such as men's and women's clubs, can participate in public health service will be briefly outlined by a representative of a national group.

S. J. Crumbine, M.D., field secretary, Conference of State and Provincial Health Authorities of North America, and general executive, American Child Health Association, New York City, will discuss the difficulties of organized public health service because of insecurity in office.

* See American Health Congress Program, page 512.

EDITORIAL SECTION

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THE RECRUITMENT OF SANITARIANS

THERE IS probably no single factor which so seriously retards public health work at the present time as the lack of trained and experienced workers of a high type to fill the openings created by the expansion of the public health campaign. This need was long ago foreseen by Sedgwick at the Massachusetts Institute of Technology, and it was to meet this need that schools of public health were established at Harvard and Johns Hopkins and that departments of health have been developed at Yale and Michigan and many other universities. Educational facilities of a high order are now available, but none of the institutions mentioned are filled to capacity and a large proportion of those who are taking advantage of their opportunities are foreigners. We are still almost as far as ever from an adequate supply of keen young men and women preparing from the start for a career in public health.

It seems clear that the recruits for this new field must be of a rather definite and special type. They should have a bent toward medical science and it is desirable that they should have received the medical degree, but what is fundamental is that they should have an interest in and a capacity for community organization, for after all public health work is essentially administrative in character. The students at present in our medical schools are men of two general types, some interested in taking care of sick people and some interested in research in the medical sciences, but the administrative cast of mind is almost absent and it is for this reason we believe that the schools of public health have failed to attract their quota of young medical graduates.

It is no doubt true that the conditions of public health work need to be made more attractive, the salaries larger and the tenure more secure; yet on the whole at the present time there are splendid openings far in excess of the supply of men. We are not getting the recruits we need from the existing body of medical students. We must either turn elsewhere or bring into the medical schools a third type, the man to whom the great thing in life is the organization of his fellows for effective common action. For men of this sort there is a career in public health which is full of rich promise, of satisfaction, and of service.

VACCINATION OF THE NEWBORN AGAINST TUBERCULOSIS [1]

AT THE PRESENT time attempts to produce a preventive and a curative serum for tuberculosis seem to be in abeyance, if we except such efforts as those ascribed to Spahlinger. On the other hand, there has been extreme activity in attempts at producing a vaccine against the disease. Most of these have fallen by the way, even their proponents acknowledging their inefficacy.

Among those which seem worthy of our attention is the vaccine produced by Calmette and his associates. Calmette considers it as an established fact that any vaccine against tuberculosis must be a living germ, more or less attenuated. After many trials he believes that beef bile, to which 5 per cent of glycerine has been added, is the best medium in which to cultivate his vaccine, not only to keep it going, but also to bring about the proper degree of attenuation. During 13 years he has continued his culture under identical conditions at 38° C. having in this time made 230 successive subcultures. His germ has at this time lost all power of producing tuberculosis in any of the domestic animals and to it he gives the name BCG (Bacillus Calmette-Guérin). After extensive experiments with domestic animals, including monkeys, which have clearly demonstrated the harmlessness of the inoculations as well as their efficacy in producing a high degree of immunity, he now reports on a series of children in Paris and other parts of France, many of whom were born of tuberculous mothers or reared in tuberculous families. The vaccine was administered by the mouth.

Among 5,183 newborn children, 1,317 of whom have been under observation and individual control for from 6 to 18 months, a total of 107 have died, 96 of whom succumbed to non-tuberculous disease and 9 to diseases presumably tuberculous. Calmette feels that he is justified in saying that immunization of the newborn by BCG saves at least 93 per cent of children who would otherwise die from tuberculosis during the first year of their lives.

Accepting these facts, the next question concerns the duration of immunity and the necessity of revaccination. This cannot be answered positively at the moment, but in view of the experimental work it seems that the resistance will last for more than 3 years.

Calmette feels strongly that in view of the wide distribution of tuberculosis, vaccine should be used in the newborn, since practically everyone in old countries is infected at an early age, and vaccination of young people and adults is possible only in countries in which tuberculosis is rare. Since the death rate from tuberculosis in children born of tuberculous mothers or living in infected surroundings, averages 25 per cent from birth to one year of age, while that of immunized children is below 2 per cent, he feels that we have in his vaccine, BCG, an agent of great value, which has been shown to be free from danger or disagreeable effects of any sort. There is no febrile reaction and no inconvenience.

Coming from such a source, the result of 20 years of constant study and experiments, Calmette's pronouncement deserves our attention. We must at least hope that an efficient method of vaccinating young children against tuberculosis is at last in our hands. Calmette gives explicit directions for making his culture medium and for the proper culture and preservation of his vaccine. Up to the present time he has not succeeded in preparing a vaccine which will keep longer than 10 days, so that it is impracticable to distribute it generally. It is indispensable that the vaccinal emulsion shall contain a maximum of living and a minimum of dead or degenerated bacilli.

1. *Ann. de l'Inst. Pasteur*, XL, 2 (Feb.), 1926.

NEW MAGAZINES WORTH READING

WHEN one hears of a new society or a new journal, one involuntarily groans. The burden of dues and subscriptions is already heavy and few men have time or energy to read everything which is of interest to them. These facts, which are so widely known and felt, have gradually led to journals which give reviews and abstracts, and these have been wonderfully helpful in lessening the load and enabling the average man to keep up with the procession.

The *Quarterly Review of Biology*, the first issue of which appeared in January, is not devoted to abstracts. It proposes to give to the reader authoritative and comprehensive reviews written by specialists, covering the present state of knowledge in the different fields of biology. It is recognized that the biologist must know a good deal about other branches such as physics, chemistry and mathematics, and the objects of this journal will be to help the man of science, in whatever line he may be, keep in touch with general biological progress. It also hopes to assist in the diffusion of sound biological knowledge among intelligent men and women even though they are not professional scientific workers. The threat of fundamentalism is recognized as being an attack on the foundation of our civilization. It is believed that the diffusion of sound scientific knowledge will be helpful in cultivating intellectual freedom and in preventing the domination of priesthoods of one sort or another. While the articles in this journal are written in language intelligible to non-professional people, there will be no attempt to write down to the supposed intellectual level of the lay audience. They will not be written in that type of popular language "which takes as its target a mental age of about ten."

The first number is excellently done, an example of first class editing as well as first class printing and illustration. A good bibliography follows each article. Eighteen pages are given to the consideration of new biological books. Most of the book reviews are very short, though as a rule sufficiently complete to act as a guide to the book buyer. Some of these reviews show either careless reading or a degree of leniency on the part of the reviewer which is unfortunate. If this new journal maintains the standard set in its first issue it will not only justify its existence but make for itself an abiding place. It is published by Williams & Wilkins, and costs $5.00 a year.

The first number of the *Bulletin of Hygiene*, January, 1926, has come to our desk. It is to be published monthly under the auspices of the Honorary Managing Committee of the Bureau of Hygiene and Tropical Diseases, and will contain summaries and reviews of articles on all branches of public health and preventive medicine. It is intended to meet the needs of Great Britain overseas, but needless to say it will contain a vast amount of material carefully reviewed and summarized which will be of interest to all those in any country working in the field of public health.

An imposing list of well known public health men is given, each one of whom has made himself responsible for some particular topic.

The first number is distinctly pleasing, well printed, and of a convenient size. We commend especially the short criticism or explanation given in brackets which ends a number of the abstracts and reviews. The only criticism that can be fairly made of the first issue is that some of the articles noticed are rather old, but we presume this will be corrected in future issues. We commend it to all readers of our JOURNAL. The subscription price, 21 shillings per annum, may be sent to the Bureau of Hygiene and Tropical Diseases, 23 Endsleigh Garden, London, W.C.1.

METRIC WEIGHTS AND MEASURES

HABITS are hard to change. For many years attention has been called to the unscientific basis upon which the weights and measures in common use in England and in this country depend. The advantages of the metric system, which is widely used outside of the English speaking countries, have been pointed out and acknowledged, but as a nation, we in America still cling to the old English system which we have inherited. We have three different standards of weights: Apothecaries, Avoirdupois and Troy. We have different standards of fluid measures. For linear measurement we have line, inches, feet, yards, fathoms, perches, furlongs, and miles, which are absolutely independent of each other as far as their names go; and for good measure we throw in hands, chains, lengths, rods, poles, cords, scruples, pennyweight, stones, etc., which have been aptly described as "survivals of barbaric barter." There is no one who has tried to make a percentage solution of a solid in a fluid by the present system who does not realize the difficulty and the abundant opportunities there are for mistakes. In English speaking countries there are at present four different sizes of pints, quarts, and gallons; the term "barrel" may mean many things; there are three values for ounces, drams and pounds; two different weights for a hundred-weight; four different tons, and at least two kinds of miles.

For many years the use of the metric system has been common in scientific work in this country and to a large extent also in England. The use of this system is strongly recommended in all departments of our government doing scientific work, and is compulsory in many, yet it has not been adopted as the law of the land nor has it gone outside of scientific circles. The man in the street would not know what one was talking about if he used the terms of the metric system. It has been frequently pointed out that our system leads to confusion and injury in our dealings with foreign countries. It is curious to note that while America has led in adopting the decimal system for currency, she has lagged behind in failing to adopt the metric system, which is now almost world-wide in its use.

The Honorable Fred A. Britten, of Illinois, has introduced a bill into the present Congress which is now in the hands of the Committee on Coinage, Weights and Measures. It provides that after January 1, 1935, metric weights and measures shall be used in trade and in charging and collecting transportation, etc. There is a slight change in wording, the exact reason for which is not clear. The "liter" becomes the "world quart" and the "meter" the "world yard," while 500 grams becomes the "world pound."

The confusion in our system extends also to our measures of temperature, the Fahrenheit scale being the only one known in this country outside of scientific circles. It is presumed that the centigrade system will certainly come into use along with the weights and measures, though this is not provided for in the bill.

Doubtless, objections will be raised as custom has a strong hold upon us. The birth of the new system will be painful and the growing pains may be severe, but when these have been safely passed through, everyone will rejoice in the new system which is easy to learn, easy to handle, and accurate in its results. The scientific men of the country can be counted upon to support the Britten bill.

ASSOCIATION NEWS

PROGRAM OF THE AMERICAN PUBLIC HEALTH ASSOCIATION AT THE AMERICAN HEALTH CONGRESS

ATLANTIC CITY, NEW JERSEY, MAY 17–22, 1926

(Including Program of the General Sessions of the Congress)

Joint sessions with other national organizations will be outstanding features of the program. Several sections of the Association will hold individual meetings. Headquarters of the Association will be the St. Charles Hotel. Registration and Information Headquarters for the Association and the entire Congress will be on the Steel Pier.

Monday, 8.00 P. M.

FIRST GENERAL SESSION, AMERICAN HEALTH CONGRESS

STEEL PIER—MUSIC HALL

OPENING SESSION

Chairman, LIVINGSTON FARRAND, M.D., President Cornell University, Ithaca, N. Y.

Financing Health. LEE K. FRANKEL, Ph.D., Chairman National Health Council, New York City.

Values in Public Health Work. SIR ARTHUR NEWSHOLME, K.C.B., M.D., F.R.C.P., Former Principal Medical Officer Local Government Board for England and Wales.

Tuesday, 9.30 A. M.

TEACHING OF HYGIENE

STEEL PIER—BALL ROOM

Under the auspices of the Committee on Training and Personnel, American Public Health Association

Chairman, C. E. TURNER, Associate Professor of Biology and Public Health, Massachusetts Institute of Technology, Cambridge, Mass.

What Should the Educated Person Know about Health? LIVINGSTON FARRAND, M.D., President Cornell University, Ithaca, N. Y.

Teaching Health in College. JOHN SUNDWALL, M.D., Director Department of Public Health, University of Michigan, Ann Arbor, Mich.

Health Instruction in Normal Schools and Teachers Colleges. EMMA DOLFINGER, Director Division of Health Education, American Child Health Association, New York City.

The Student Health Program Exclusive of Class Room Instruction. CHARLES H. KEENE, M.D., Professor of Hygiene and Director of Physical Education, University of Buffalo, Buffalo, N. Y.

Tuesday, 3.00 P. M.

SECOND GENERAL SESSION, AMERICAN HEALTH CONGRESS

STEEL PIER—MUSIC HALL

WHOSE BUSINESS IS THE PUBLIC HEALTH?

Chairman, LINSLY R. WILLIAMS, M.D., Managing Director National Tuberculosis Association and Secretary New York Academy of Medicine, New York City.

The Standpoint of the Practicing Physician. CLARENCE D. SELBY, M.D., Toledo, O., President Ohio State Medical Association.

The Standpoint of the Sanitarian. C.-E. A. WINSLOW, Dr.P.H., Professor of Public Health, School of Medicine, Yale University, New Haven, Conn., and President American Public Health Association.

Wednesday, 9.30 A. M.

CLINIC ON HEALTH EDUCATION AND PUBLICITY

ST. CHARLES HOTEL—GREEN ROOM

Under the auspices of the Health Education and Publicity Section, American Public Health Association

Chairman, E. G. ROUTZAHN, Associate Director Department of Surveys and Exhibits, Russell Sage Foundation, New York City.

Topic: **Popularizing Health Education.**

Informal Discussion.

Wednesday, 9.30 A. M.

NEWER METHODS OF CONTROL OF CERTAIN COMMUNICABLE DISEASES

STEEL PIER—CASINO

Joint session with the American Child Health Association.

Chairmen, HENRY L. K. SHAW, M.D., Consultant in Child Hygiene, State Department of Health, Albany, N. Y., and WILLIAM J. BELL, M.B., Deputy Minister of Health, Province of Ontario, Toronto, Ontario, Can.

Scarlet Fever. JOHN A. KOLMER, M.D., Professor of Pathology and Bacteriology, Graduate School of Medicine, University of Pennsylvania, Philadelphia, Pa.

Measles. ROWLAND G. FREEMAN, JR., M.D., New York City.

Practical Immunization against Diphtheria. WILLIAM H. PARK, M.D., Director Bureau of Laboratories, Department of Health, New York City.

Results of Diphtheria Immunization in Central New York. FREDERICK W. SEARS, M.D., District State Health Officer, Syracuse, N. Y.

How Should the Campaign against Diphtheria Be Conducted? MATTHIAS NICOLL, JR., M.D., State Commissioner of Health, Albany, N. Y.

Wednesday, 2.30 P. M.

MILK IN ITS RELATION TO PUBLIC HEALTH *

ST. CHARLES HOTEL—GREEN ROOM

Chairman, C.-E. A. WINSLOW, DR.P.H., Professor of Public Health, School of Medicine, Yale University, New Haven, Conn., and President American Public Health Association.

Milk Control in a Large City. LOUIS I. HARRIS, M.D., Commissioner of Health, New York City.

Discussion. HERMAN N. BUNDESEN, M.D., Commissioner of Health, Chicago, Ill.

Economical Milk Production and Sanitation. C. W. LARSON, Chief, Bureau of Dairying, United States Department of Agriculture, Washington, D. C.

Federal Standards for Milk Control. LESLIE C. FRANK, Associate Sanitary Engineer, United States Public Health Service, Montgomery, Ala.

Fifty Years of Milk Control in the Oranges. FRANK J. OSBORNE, Health Officer, East Orange, N. J.

* This session will be preceded by a short business meeting of the Association.

Wednesday, 2.30 P. M.

VENEREAL DISEASE CONTROL

STEEL PIER—BALL ROOM

Joint session of the American Social Hygiene Association and Public Health Administration Section, American Public Health Association.

Chairman, LOUIS I. HARRIS, M.D., Commissioner of Health, New York City.

Next Steps in the Field of Venereal Disease Control from the Standpoint of the United States Public Health Service. HUGH S. CUMMING, M.D., Surgeon-General, United States Public Health Service, Washington, D. C.

Venereal Disease Control from the Viewpoint of the National Voluntary Organizations—A Report of Progress. WILLIAM F. SNOW, M.D., General Director American Social Hygiene Association, New York City.

The Importance of Venereal Disease Control in a Health Demonstration. LOUIS CHARGIN, M.D., Chief, Division of Venereal Disease, Department of Health, New York City.

Venereal Disease Activities in Detroit, Michigan. (a) Present Plan. (b) Ideal Plan. RAY S. DIXON, M.D., Director Venereal Clinic, Department of Health, Detroit, Mich.

Thursday, 9.30 A. M.

DOMESTIC AND INDUSTRIAL WASTES IN RELATION TO PUBLIC WATER SUPPLY

ST. CHARLES HOTEL—GREEN ROOM

Joint session of the New Jersey Sanitary Association, Public Health Engineering Section and Public Health Administration Section, American Public Health Association.

Honorary Chairman, H. B. COSTILL, M.D., Director of Health, State Department of Health, Trenton, N. J.

Chairman, ABEL WOLMAN, Chief Engineer Maryland State Department of Health, Baltimore, Md.

Administrative Problems in the Control of Pollution of Streams. GEORGE W. FULLER, Consulting Engineer, New York City.

Legal Principles Involved in Industrial Wastes Control. JOHN FERTIG, Assistant Director Legislative Reference Bureau, Harrisburg, Pa.

Administrative Solutions to the Problem of Control of Stream Pollution. JOHN E. MONGER, M.D., Director of Health, Columbus, Ohio.

Cross Connections in Potable Water Supplies. HARRY P. CROFT, C.E., Chief, Bureau of Engineering, State Department of Health, Trenton, N. J.

Thursday, 9.30 A. M.

INTERRELATIONSHIP BETWEEN HEALTH EDUCATION AND THE SCHOOL HEALTH SERVICE

STEEL PIER—BALL ROOM

Joint session of the American Child Health Association and Child Hygiene Section, American Public Health Association.

Chairman, C. E. TURNER, Associate Professor of Biology and Public Health, Massachusetts Institute of Technology, Cambridge, Mass.

Getting Results in the Elementary School. JULIET BELL, Director County Health Education Demonstrati Western State Normal School, Kalamazoo, Mich.

Observations in Secondary Schools. EDNA BAILEY, Ph.D., Supervisor Teaching of Science, University High School, Berkeley, Calif.

Unifying the Program. DANIEL J. KELLY, Superintendent of Schools, Binghamton, N. Y.

Thursday, 2.30 P. M.

GRAPHIC PRESENTATION OF PUBLIC HEALTH NURSING A CLASS IN HOW TO DO IT

BREAKERS HOTEL—ROOF GARDEN

Joint session of the National Organization for Public Health Nursing and Public Health Nursing Section, American Public Health Association.

Chairman, SOPHIE C. NELSON, R.N., Director Visiting Nurse Service, John Hancock Mutual Life Insurance Company, Boston, Mass.

How to Make Convincing Charts. MAY AYRES BURGESS, Ph.D., Committee on Dispensary Development, New York City.

How to Find the Figures. LOUISE M. TATTERSHALL, Statistician National Organization for Public Health Nursing.

How a Nurse Can Do It. MARY DEMPSEY, Statistician Syracuse Health Demonstration, Syracuse, N. Y.

Thursday, 2.30 P. M.

MAKING THE ENVIRONMENT COUNT FOR HEALTH EDUCATION

STEEL PIER—BALL ROOM

Joint session with the American Child Health Association.

Chairman, GEORGE T. PALMER, D.P.H., Director of Research, American Child Health Association, New York City.

The Scientific Aspects of School Ventilation. C.-E. A. WINSLOW, Dr.P.H., Professor of Public Health, School of Medicine, Yale University, New Haven, Conn., and President American Public Health Association.

School Ventilation from the Standpoint of the School Administrator. JOHN R. MCLURE, Ph.D., School of Education, University of Alabama, University, Ala.

Lunch Room Facilities and Their Educational Use. EMILINE S. WHITCOMB, Specialist in Home Economics, United States Bureau of Education, Washington, D. C.

Play Spaces as Health Education Equipment. CLARK W. HETHERINGTON, Professor of Physical Education, School of Education, New York University, New York City.

Thursday, 2.30 P. M.

LIGHT

ST. CHARLES HOTEL—GREEN ROOM

Under the auspices of the Child Hygiene Section, American Public Health Association

Chairman, WILLIAM J. BELL, M.B., Deputy Minister of Health, Province of Ontario, Toronto, Ontario, Can.

Light and Life. J. W. M. BUNKER, M.D., Associate Professor Massachusetts Institute of Technology, Cambridge, Mass.

Light in Relation to Nutrition, Development, Growth, and Repair. R. I. HARRIS, M.D., Surgeon, and W. F. TISDALE, M.D., Pediatrician, Hospital for Sick Children, Toronto, Ontario, Can.

Thursday, 8.00 P. M.

THIRD GENERAL SESSION, AMERICAN HEALTH CONGRESS

STEEL PIER—MUSIC HALL

PUBLIC HEALTH AND THE FUTURE OF THE RACE

Chairman, S. J. CRUMBINE, M.D., General Executive American Child Health Association, New York City, and Field Secretary Conference of State and Provincial Health Authorities of North America.

Mental Hygiene Speculation Versus Sound Investment in This Movement. CHARLES P. EMERSON, M.D., Indianapolis, Ind., President National Committee for Mental Hygiene.

Progress and Problems of Dentistry as Relating to the Future of the Race. SHEPPARD W. FOSTER, D.D.S., F.A.C.D., Atlanta, Ga., President American Dental Association.

Is Public Health Improving the Race? RAY LYMAN WILBUR, M.D., President Stanford University, Palo Alto, Calif.

Friday, 9.30 A. M.
2.30 P. M.

COMMUNITY HEALTH ORGANIZATION

STEEL PIER—MUSIC HALL

Morning. Joint session with American Child Health Association and National Organization for Public Health Nursing.

Afternoon. Joint session with American Child Health Association, National Organization for Public Health Nursing and Conference of State and Provincial Health Authorities of North America.

Honorary Chairman, HUGH S. CUMMING, M.D., Surgeon-General, United States Public Health Service, Washington, D. C.

Assisting, HENRY F. VAUGHAN, D.P.H., Commissioner of Health, Detroit, Mich.

Presentation of Three Plans for Health Organization.

(a) City of 100,000—Plan prepared by C.-E. A. WINSLOW, Dr.P.H., and presented in the report of the Committee on Municipal Health Department Practice, *Public Health Bulletin 136,* 1923.

(b) City of 50,000—Plan prepared by the American Child Health Association and presented in *A Health Survey of 86 Cities,* 1925.

(c) City of 20,000—Plan prepared by IRA V. HISCOCK and presented at a Round Table Discussion before the Public Health Administration Section of the American Public Health Association at the Fifty-second Annual Meeting at Boston, October 10, 1923.

Basis of Plans: Similarity—Personnel Required—Costs. HENRY F. VAUGHAN, D.P.H., Commissioner of Health, Detroit, Mich.

1. **Details of the Plan for City of 100,000 and Criticisms.** JOHN L. RICE, M.D., Health Officer, New Haven, Conn.

Discussion. **Infant Welfare Service.** W. BROWNLEY FOSTER, M.D., Director Public Welfare, Richmond, Va.

Organization of Tuberculosis Service. HERMAN N. BUNDESEN, Commissioner of Health, Chicago, Ill.

Public Health Nursing Service. HARRIET LECK, R.N., Director Visiting Nurse Association, Hartford, Conn.

2. **Details of Plan for City of 50,000 and Criticisms.** THOMAS TETREAU, M.D., Health Officer, Portland, Me.

Discussion. **School Health Service.** LONSDALE J. ROPER, M.D., Director Department of Public Welfare, Portsmouth, Va.

Sanitary Services. FRANK J. OSBORNE, Health Officer, East Orange, N. J.

Communicable Disease, Including Venereal Disease. Paper by W. P. SHEPARD, M.D., Health Officer, Berkeley, Calif. Read by RICHARD A. BOLT, M.D., Assistant Professor of Child Hygiene, University of California, Berkeley, Calif.

3. **Details of Plan for City of 20,000 and Criticisms.** EDWIN G. RAMSDELL, M.D., Health Officer, White Plains, N. Y.

Discussion. **Health Educational Service.** ARLINGTON AILES, M.D., Director Hygienic Institute, LaSalle, Ill.

Public Health and Community Nursing. SOPHIE C. NELSON, R.N., Director Visiting Nurse Service, John Hancock Mutual Life Insurance Company, Boston, Mass.

4. **Details for Plan of County Health Organization.** JOSEPH W. MOUNTIN, M.D., Director Rural Sanitation, Board of Health, Jefferson City, Mo.

Discussion. HARRY S. MUSTARD, M.D., County Health Officer and Director of Rutherford County Child Health Demonstration, Murfreesboro, Tenn. I. C. RIGGIN, M.D., Commissioner of Health, Oberlin, O.

5. **Summary: Are These Plans Practicable or Too Idealistic for These Cities?**

(a) Cities of 100,000—MATTHIAS NICOLL, JR., M.D., State Commissioner of Health, Albany, N. Y.

(b) Cities of 50,000—RICHARD M. OLIN, M.D., State Health Commissioner, Lansing, Mich.

(c) Cities of 20,000—E. L. BISHOP, M.D., State Health Commissioner, Nashville, Tenn.

6. **The Part of Private Organizations in the Development of Organized Public Health Service.** MRS. WALTER MCNABB MILLER, Secretary Committee on Public Welfare, General Federation of Women's Clubs, St. Louis, Mo.

7. **The Great Obstacle in the Way of Public Health Organization.**

Indefinite Tenure. S. J. CRUMBINE, M.D., General Executive American Child Health Association, New York City, and Field Secretary Conference of State and Provincial Health Authorities of North America.

Friday, 8.00 P. M.

FOURTH GENERAL SESSION, AMERICAN HEALTH CONGRESS

STEEL PIER—MUSIC HALL

INTERNATIONAL HEALTH WORK

Chairman, WILLIAM F. SNOW, M.D., General Director American Social Hygiene Association, New York City.

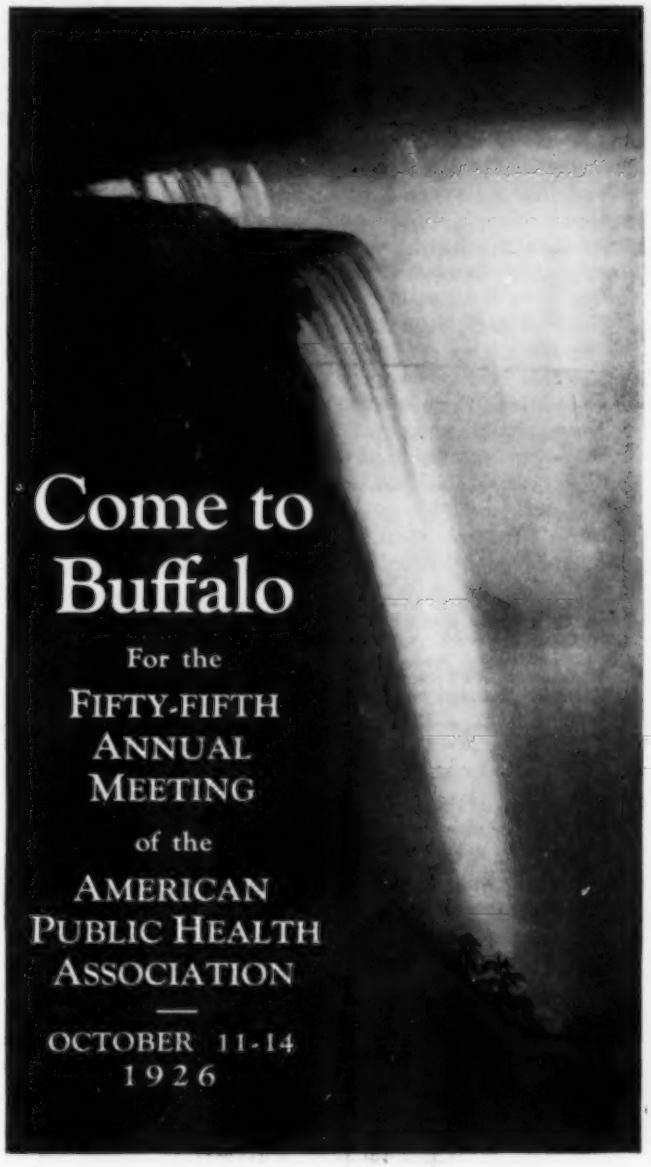
International Organization for World Health. GEORGE E. VINCENT, Ph.D., President Rockefeller Foundation, New York City.

The Health Committee of the League of Nations. ALICE HAMILTON, M.D., Chicago, Ill., American Member Health Committee of the League of Nations.

Development of International Collaboration on Public Health Activities. RENÉ SAND, M.D., Secretary General League of Red Cross Societies, Paris, France.

THE FIFTY-FIFTH ANNUAL MEETING

EACH year the American Public Health Association recruits more and more members from rural districts. Among them are eminent sanitarians, men and women who have discovered the immediate and varied problems of Rural Hygiene and have solved them despite limited personnel and funds, and lack of organization and community coöperation. Rural Hygiene will be featured at the Fifty-fourth Annual Meeting of the Association at Buffalo in October, when those from the field armed with first-hand information and specific problems will participate in the program.



The tentative program includes the hazards to health in a rural community and its safeguards; the possibility of the periodic physical examination; means of popularizing health safeguards, and stimulating doctors, teachers and parents to their individual responsibility. Rural Sanitation will be discussed from the viewpoint of individual versus municipal control. Under Community Organization, the duties of the health officer and the time allotted to his job, the possible coöperation of educational and public welfare leaders and the financial guarantee for a permanent program are to be taken up.

Of equal importance in the general program will be the consideration given to Tropical Hygiene by leaders from Mexico, Central America, South America and Cuba.

A résumé supplemented by an exhibit of the public health work in Russia to be presented by a prominent Russian sanitarian will give the meeting at Buffalo an international tone this year.

LETTER TO THE EDITOR

TO THE EDITOR:

In attempting for the past two years to compile information regarding smallpox in various states, I find what appear to me to be two serious deficiencies in the method of reporting cases and deaths from smallpox.

In most of the states there appears to be no attempt to classify "smallpox" into the more commonly recognized types—discrete, confluent, hemorrhagic. In view of the tremendous difference as to fatality among these three types, it would seem of importance to make note of this item in all reporting of smallpox.

The other item refers to the record of vaccinal condition. From most of the states it has not been possible to get definite information regarding the vaccinal condition of either the smallpox cases or of the smallpox deaths in recent years. On the other hand in a few states and cities the record is very complete. It would seem worth while to provide, either through instruction to reporting physicians and officers or through the preparation of suitable blank forms, for the complete entry of essential information on this point.

I hope that health officers and registrars of vital statistics will take this matter up in order that uniform reporting may in the future make available significant data.

Yours very truly,

BENJ. C. GRUENBERG

Managing Director,
American Association for Medical Progress, Inc.,
New York, N. Y.
April 1, 1926.

LIST OF NEW MEMBERS

Carolyn A. Boudo, New York, N. Y., Research Institute, Child Health Demonstration Committee

Nellie C. Cunningham, B.A., R.N., B.S., Columbia, S. C., Supervising Nurse, Bureau of Child Hygiene and Public Health Nursing, State Board of Health

L. L. Dozier, M.D., Tallahassee, Fla., District Health Officer

Carroll William Eddy, D.V.M., Tampa, Fla., Chief Dairy Inspector

Henry Edward Elwood, Jr., M.D., Corning, N. Y., Health Officer

Charles H. Farmer, M.D., Jacksonville, Fla., District Medical Officer, Florida State Board of Health

Arthur C. Fay, M.S., Manhattan, Kans., Dairy Bacteriologist, Kansas Experiment Station

Jacob William Forbes, B.S., Bozeman, Mont. (Assoc.)

Alfred Friedlander, A.B., M.D., Cincinnati, O., Professor of Medicine, College of Medicine, University of Cincinnati

Hugh H. Hedgcock, B.S., East Chicago, Ind., City Chemist and Bacteriologist

Carrie Alice Herring, B.Sc., M.D., Akron, O., School Physician and Clinician in Well Baby Clinics

Emanuel Hurwitz, Chicago, Ill., Principal Assistant Chemist, Sanitary District of Chicago

Thomas L. Mahony, M.D., Poughkeepsie, N. Y.

Neil E. McKinnon, M.B., Toronto, Canada, Demonstrator in Epidemiology, School of Hygiene, Toronto

Mabel Anna McClenahan, R.N., Manhattan, Ill., School Nurse, Joliet Township High School and Junior College

E. Merrill Miller, M.D., Glendale, Calif., City Health Officer

Edward L. Miloslavich, M.D., Milwaukee, Wis., Consultant Pathologist to the Municipal Isolation Hospital

Hugo Muench, Jr., M.D., Austin, Tex., State Board of Health

William E. Musgrave, M.D., Ben Lomond, Calif. (Assoc.)

William S. Nichols, M.D., Lake City, Fla., District Field Medical Officer

W. S. Petty, M.D., Caruthersville, Mo., Health Officer

H. J. Powell, Ph.B., A.M., M.D., Bowling Green, O., Health Commissioner, Wood County

Lucena Knight Robinson, A.B., M.A., Albany, N. Y., Laboratory Assistant in Chemistry, New York State Department of Health

Hettie W. Seifert, R.N., Elizabeth, N. J., Director, Visiting Nurse Association

Benjamin J. Slater, M.D., Rochester, N. Y., Industrial Physician, Eastman Kodak Company

Carl Speer, Jr., B.S., Baltimore, Md.

Julia R. Sundt, R.N., East Las Vegas, New Mex., Sheppard-Towner, Field Nurse

William P. Van Deusen, M.D., St. Paul, Minn., Bacteriologist, St. Paul Water Department

APPLICANTS FOR FELLOWSHIP

LABORATORY SECTION: Thomas Fort Sellers, Atlanta, Ga.

VITAL STATISTICS SECTION: James Strode Elston, Hartford, Conn.

INDUSTRIAL HYGIENE SECTION: Charles T. Graham-Rogers, Brooklyn, N. Y.; Ruth M. Hutton, Toronto, Canada.

FOOD AND DRUGS SECTION: George Webster Grim, Ardmore, Pa.; W. S. Hollingworth, Utica, N. Y.

CHILD HYGIENE SECTION: Clara Edna Hayes, M.D., Waubay, S. Dak.; James Hall Mason Knox, Jr., M.D., Baltimore, Md.

HEALTH EDUCATION AND PUBLICITY SECTION: Ray H. Everett, New York, N. Y.

PUBLIC HEALTH NURSING SECTION: Mary S. Gardner, R.N., Providence, R. I.; Ada M. Safford, Farmington, Mich.; Anne Lyon Hansen, R.N., Buffalo, N. Y.

UNAFFILIATED: Helen B. Bonness, M.D., Helena, Mont.; Platt W. Covington, M.D., Salt Lake City, Utah; L. M. Fisher, Columbia, S. C.; John Emerson Monger, Columbus, Ohio; Lawrence E. Poole, M.D., Fairfield, Conn.

APPLYING FOR REINSTATEMENT: Leslie Carl Frank, Montgomery, Ala.

NO IDENTIFICATION CERTIFICATES

No identification certificates for special railroad rates to the American Health Congress at Atlantic City, May 17–22, will be issued in advance from the office of the A.P.H.A. as is customary at the Annual Meeting of the Association. Throughout the United States, the various railroads have granted the one and one-half fare certificate plan reduction. When purchasing your ticket at full fare for one way ask the passenger agent for a certificate which will be validated at Atlantic City and your return ticket will cost one-half the usual full fare.

JOINT MEETING A.P.H.A AND A.S.A.

About 75 statisticians and sanitarians attended the joint dinner meeting of the American Statistical Association and the American Public Health Association at the Aldine Club in New York City, April 9, to commemorate the twentieth anniversary of the death of William Alexander King, M.D., the first chief statistician for vital statistics in the permanent Bureau of the Census.

Louis I. Harris, M.D., Commissioner of Health, New York City, presided, introducing Walter F. Willcox, Ph.D., Cornell University, Ithaca, N. Y., as the first speaker. Dr. Willcox spoke of the services of John Shaw Billings, M.D., in the development of national vital statistics from 1880 to 1900, bringing out the point that since 1880 the length of human life in New York City has been increased from 36.2 years to 52.8 years. Among the white population in New York City it has been extended from 35 years to 56.2 years. In commenting upon this statement Dr. Harris referred to the negro health week program in New York, stating that because of the facts obtainable from the orderly and well kept vital statistics that colored leaders are able to put forth a tremendous and worthwhile effort properly directed for the improvement of the health of their people.

George H. Van Buren, Metropolitan Life Insurance Company, New York City, carried the development of vital statistical work from 1900 to 1906 under the direction of Dr. King and the Federal Registration Service. Mr. Van Buren said that Dr. King's greatest work was probably as author of "The Standard Certificate of Death" and as joint author of "The Model Vital Statistics Law."

William H. Guilfoy, M.D., Department of Health, New York City, gave a brief résumé of the life of Cressy Livingston Wilbur, M.D., and his services with the Federal Registration Service from 1906 to 1914.

William H. Davis, M.D., chief statistician, Bureau of the Census, Washington, D. C., outlined the plan and preparations for bringing all states into the birth and death registration area by 1930. Only 8 states remain to be brought into the area for death and 15 to be brought within the birth registration area. Dr. Davis referred to the excellent work being done by Wilmer R. Batt, M.D., formerly state registrar of Pennsylvania, who is now working with the United States Bureau of the Census in aiding states in the organization of their vital statistics work.

Louis I. Dublin, Ph.D., statistician, Metropolitan Life Insurance Company, New York City, told of the program of the American Public Health Association being carried on by a special committee of the Vital Statistics Section and which is being financed by a contribution amounting to nearly $10,000 made by several life insurance companies. This committee is in a position to assist Dr. Davis in his field service and also carry on work in other areas closely correlated with the work of the Bureau of the Census.

Among the guests were Sir Arthur Newsholme, K.C.B., M.D., F.R.C.P., formerly principal medical officer of the Local Government Board for England and Wales, and Lady Newsholme. Sir Arthur Newsholme commented upon the importance of the completion of the registration area and he lauded the excellent contributions that have been made by American workers in the universal field of vital statistics.

BOOKS AND REPORTS

Bergey's Manual of Determinative Bacteriology—*A Key for the Identification of Organisms of the Class Schizomycetes. Second edition. David H. Bergey. Baltimore: Williams & Wilkins*, 1925. 462 pp. Price, $5.50.

The second edition of this manual, prepared by a committee of the Society of American Bacteriologists, under the active chairmanship of Dr. Bergey, follows the first edition after an interval of 2 years. The boundless enthusiasm necessarily inspiring those working on this volume, their endless courage, and the tremendous volume of work required cannot be too favorably commented upon. As to the results of their endeavors opinions have been, and undoubtedly will be, divided. In this edition some corrections have been made and some descriptions amplified, four generic terms have been changed, several keys have been altered to assist in tracing unknown species, and some new species have been added. The format of the book is unchanged, except for the incorporation of the index prepared by Dr. Breed, which was issued as a supplement to the first edition. This resulted in the condensation of the index by 9 pages, the descriptive part containing 10 additional pages. Some helpful notes have been scattered throughout; for example, after the descriptions of *Alcaligenes abortus* and *Alcaligenes melitensis* there follows: "Recent studies on the serologic relations of A. abortus and A. melitensis show that these two organisms are closely related, if they are not identical." The species described are essentially all of those which have been reported in any detail and include, very roughly grouped, 174 species isolated from the soil, 187 from water, 65 from milk or milk products, 194 from human sources, the majority being from the "intestinal canal," 43 from food or allied products, 62 from plants, 72 from animals or insects, 23 from air, and 47 from other sources.

The changes in this edition of the manual will perhaps be considered too conservative by many. At a recent meeting of the society from which the committee in charge was taken, Dr. Ivan C. Hall stated that it was his opinion that it was a pity that a work which should require 50 years or more should have been crowded into a much shorter time, and he presented some constructive criticism of the book in its original form, criticism which would still apply to the second edition. The committee seeks criticism and would probably accept this statement as having a great deal of truth in it. On this basis, the first two editions are merely the first two steps of the far more perfect work of 50 years hence. However, one might hope that these steps be taken not more frequently, but more radically. The fact that a committee acting in coöperation with a society has the work in charge is probably in some ways a drawback. There are too many opinions to be averaged and satisfied. If one man were to assume the full responsibility and were to be perfectly free to use his own judgment in the selection of material and advice, progress might be simplified.

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Like the first volume, it shows a vast amount of research. Customs and superstitions have been gathered from all parts of the world concerning the organs of the special senses. One stands astonished at the amount of research and wide reading shown by the author in these pages. One scarcely realizes that the brutal punishments connected with some of the senses persisted until a comparatively recent time.

We are told that during the reign of Queen Anne of England the author of *Robinson Crusoe* was condemned to pay a fine of 200 marks, to have his ears cut off, to be exposed in the pillory, and to be confined in prison at the pleasure of her majesty. His book was burned by the hangman. However, the people surrounded him at the pillory, covered the scaffold with flowers, protected him against insults and sang their hymn, "To the Pillory." Through this demonstration the cutting off of his ears was avoided. The book is full of such anecdotes. The women of to-day with their fondness for rouge and lip-stick may well take heed of the clever remark made by Vendôme concerning Madame de Nemours, who apparently had a large nose and bright red lips: "She looks like a parrot eating a cherry." Perhaps the most interesting chapter is that concerning the sense of smell. The use of perfumes has played such a large part in history that material is abundant. Approximately 125 pages out of the total 300 are given to this subject.

This book is intensely interesting, well written, and for those who are fond of the curious things of the world, is a treat. It can be recommended for all who enjoy light and interesting reading. M. P. RAVENEL

BOOKS AND REPORTS

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Epidemiologie—*Par Ch. Dopter et Vezeau de Lavergne. Paris: J. B. Bailliere et Fils.* 1925. 938 pp. Paper. Price, 70 fr.

This book is Volume 19 of the Treatise on Hygiene being published under the direction of Drs. Louis Martin and Georges Brouardel. The first part of the book is taken up with the consideration of general matters, such as the conditions which modify the susceptibility of the patient on the one hand and the virulence of the germ on the other. The state of nourishment, age, sex, etc., receives adequate and intelligent consideration, as also the effect of the emotions, heat and cold, seasons, and other such matters. The methods by which the well are infected from the sick are well described, though we believe that the rôle of insects in the transmission of disease deserves more space than has been given to it. Approximately one-eighth of the entire book is given up to such considerations. The rest of it is devoted to the various diseases.

The authors evidently believe in the historical method of presentation, and each subject is treated in the thorough manner more characteristic of foreign publications than of those originating in this country. As far as the book goes, it is one of the best which we have seen. One notices with considerable surprise that such diseases as tuberculosis and syphilis are not mentioned. We have not had the good fortune of seeing the other volumes of this treatise, but it is understood that the plan of the work calls for a second volume on epidemiology in which the diseases omitted from the first volume will be considered. We judge that the manuscript was prepared considerably in advance of publication, since we have been unable to find any references later than 1923, though the book was published in 1925. This is particularly unfortunate in respect to such diseases as scarlet fever, where we fail to find any mention of the recent work in this country, which has done so much to clear up the etiology and has given us a curative serum from which good results are being obtained. The Schultz-Charlton reaction, however, is mentioned. In view of the excellent character of the book in general, and the familiarity shown with the literature of the world, one can only draw such a conclusion as mentioned.

The book is well printed and interestingly written, and though we find some of the mistakes so common in references to American literature and in the spelling of American names, they are less common than usual.

In spite of the omissions pointed out, the book will be a valuable addition to the library of all interested in epidemiology and public health.

M. P. RAVENEL

New-World Health Series (*Third Edition*)—*Book I. Ritchie-Caldwell's Primer of Hygiene*, 1924; *Book II. Ritchie's Primer of Sanitation*, 1925; *Book III. Ritchie's Primer of Physiology*, 1924. *Yonkers, N. Y., World Book Co.* 184, 231 and 276 pp. Price, $.80, $.84 and $.88.

John W. Ritchie is Professor of Biology at the College of William and Mary. Author of Human Physiology in the New World Science Series, and editor of that series. Joseph S. Caldwell, joint author of the Primer of Hygiene, is Plant Physiologist, Bureau of Plant Industry, U. S. Department of Agriculture.

Book I—The authors state that this book is a "simple textbook on personal health and how to keep it," intended "to teach the pupil (of grades 4 and 5) what he himself can do to keep his body in health." The chief concern is to provide information concerning the *facts* and principles of hygiene. The secondary concern is the encouragement of right habits of living. The book is an evolution from the old-fashioned physiology. If used as a text in schools, it seems rather more suitable for grades 6 to 9 than for grades 4 or 5, and should be supplemented by other phases of health teaching.

Book II—This is a "simple textbook on disease germs and how to fight them" and is designed for use in grades 5, 6 or 7. The health program is many-sided in all grades and the test of the effectiveness of the teaching is the extent to which it functions in healthy living.

Sanitation has a direct relation to the child's daily living. Sanitation alone is not a complete health program for any grade. It is probable that neither the author nor the publishers conceive it so to be. The buyer of school textbooks, however, may not see this so clearly. If the preface could make this plain, and could also outline the relation of sanitation to the other parts of the health program, it would not only help to promote the complete health program but would make for a more effective understanding of sanitation itself. The criticism here is not of the subject matter in the book, which is no doubt authoritative, but of the teaching method suggested by the book itself. The teacher who is awake to the advantages of teaching health by correlation with other

subjects will no doubt use this book in this way, if she is permitted to do so, picking out the parts which have a special bearing on projects in hand or situations that develop in the daily life of the pupils.

Book III—"A Practical Textbook of Physiological Principles and Their Application to Problems of Health." This book is designed for grades 6, 7 or 8. The author, who is an authority on human physiology, acknowledges his further indebtedness to Professor J. S. Caldwell, Dr. F. B. Dresslar, Dr. Graham Lusk, and Dr. Martin H. Fischer. This should mean that the subject matter is recent and sound. The author briefly states his viewpoint: "hygiene is best taught by giving a solid basis of structure and function for it," and "modern hygienic knowledge is able to free our people from most of their illnesses, and that this knowledge ought to be given to the people by the schools that have been founded for this instruction."

The book, while concerned mainly with fact-teaching in relation to physiology and hygiene, gives suggestions for teacher and pupil of demonstrations and experiments to illustrate the text. What has been said above in regard to textbooks for health teaching, applies to this book also, as much of the book is concerned with the teaching of hygiene. The pupil in the upper grammar and junior high school grades needs to be building up a foundation of knowledge in general science, including nature study and biology, of which physiology is a part.

The book contains much information that will be valuable to teacher and pupil, but the plan of the book is the old-fashioned one of combining physiology and hygiene in one book, with the idea that hygiene can be taught by a book.

HARRIET WEDGWOOD

Fresh Air and Ventilation—*By C.-E. A. Winslow. New York: Dutton,* 1926. 182 pp. Price, $2.00.

This small volume is in the main a condensation of the New York State Commission's report on ventilation. The author introduces his subject with a short and concise review of the basic conditions of life, stressing the important rôle played by atmospheric conditions. Next he proceeds to a general discussion of what constitutes good ventilation and how to secure it under varying conditions. After confirming modern views of the fundamental problems involved in ventilation by well chosen illustrations, the author attempts to prove by means of the results obtained by the New York State Commission on Ventilation that even a relatively slight excess of atmospheric temperature constitutes a problem of the most serious moment. A temperature above 68°, with little air movement and moderate humidity, markedly increases susceptibility to respiratory diseases.

The relative merits of window ventilation and fan ventilation are discussed. It is claimed that in dwelling houses and hospital wards ordinary window ventilation is generally sufficient for all practical purposes, but that in the use of natural ventilation of this kind it is essential to maintain more or less constant watchfulness. Basing his judgment on the tests conducted by the commission it seems clear to the author that ventilation of the schoolroom by the window-supply gravity-exhaust method is on the whole more satisfactory than that obtained by the fan system. For the large or crowded office or workroom and the auditorium mechanical ventilation is recommended.

The subjects of artificial humidification, recirculation, and the use of ozone in ventilating systems are briefly discussed, but are not advocated as general procedures.

In the light of more recent experimental work one cannot wholly accept the author's standard or method of measuring good ventilation, since it has been shown that no single instrument can determine comfort conditions. Many will likewise differ from the author's views on how to procure good ventilation and on relative costs of maintaining different systems. Greater refinement in air conditioning and air distribution has largely eliminated the defects of the older systems and it is possible to produce mechanically any desirable combinations of atmospheric conditions. The all important consideration, irrespective of equipment or method, lies in the adequate definition of ventilation standards.

The author concludes with two interesting chapters devoted to special problems of factory ventilation and the general relations between climate and season and disease. Some minor points are open to criticism: in the author's opinion metallic lead is not poisonous although contrary evidence is available.

The subject matter is well presented, exceptionally clear, and written with a simplicity of style which is pleasing. The book is intended for the general reader, rather than for the physician, the engineer, or the school superintendent.

WILLIAM J. MCCONNELL

Textbook of Physiology—*By William D. Zoethout, Ph.D., Professor of Physiology in in the Chicago College of Dental Surgery (Loyola University) and in the Chicago Normal School of Physical Education. St. Louis: Mosby,* 1926. 604 pp. Illustrated.

The large human physiologies with their complete detail are necessary for medical science. The general physiologies which treat of the biochemistry and biophysics of the phenomena of physiology are admirable in their field. The briefer texts are generally adulterated with such subjects as sanitation, hygiene, dietetics and kindred topics.

For teaching informative physiology a text dealing adequately with physiological function, of not too voluminous content of details, and with a minimum of extraneous or allied subjects is desirable. Such a book is this one . . . "intended to fill the gap between the larger texts . . . and the briefer texts . . . which are too elementary to be considered seriously."

The author has tried to attain the golden mean between pure and applied science and not to mingle the two more than necessary. In this it appears that some success has been obtained. In the opinion of the reviewer it appears that the treatment of foods and digestion is rather more biochemical than necessary in a physiology text-book. The chapter on "metabolism" is regarded in the same light as being largely biochemical.

The separation of the subjects "Muscle-Nerve Physiology" and "The Central Nervous System," which appear at opposite ends of the book, does not seem logical. Each teacher must follow his own ideas in the matter of arrangement of material, however, and it is not bothersome to assign reading by subjects irrespective of their sequence in text.

The treatments of "Cellular exchange" and "Cell Nourishment," however, should have been combined, and the short chapter of 4 pages on "The Interrelationships of the Organs" seems like an afterthought.

In spite of the lack of continuity and logical sequence in arrangement, the book is meritorious. It appears to be complete and to follow the classical ideas in regard to the subject with nothing startling or original to challenge the reader. The relegation of the treatment of the "Reproductive Function" to the last few pages, and the rather inadequate treatment afforded this highly important subject reflects, no doubt, the exigencies of publication of books for circulation in those regions where over-zealous and ill-considered legislation forbids the circulation of books mentioning the subject. This is to be construed as a reflection of the mental viewpoint of the sponsors of such legislation, a viewpoint which does not reflect credit, and should not be taken to indicate the opinions of the author of the text.

In make-up, the book is well arranged. Paragraphs are well separated and demarked. This facilitates the use of the text for reference. The illustrations are numerous but present an uninteresting appearance in their lack of freshness and because of poor execution. They do not do credit to the publisher. Original drawings suggest the advisability of the employment of an artist for the drawings of the next edition.

The book is recommended as being suited for courses of collegiate grade in institutions where anatomy is treated adequately as a prerequisite for physiology and where other allied subjects are treated separately. Zoethout's text is a text of informative physiology, treated scientifically.

J. W. M. BUNKER

The Conquest of Disease—*By David Masters. New York: Dodd, Mead,* 1925. 353 pp. Price; $2.50.

The author has given us a very interesting account of most of the great discoveries in medicine, beginning with the circulation of the blood by William Harvey. It is unfortunate that he has entered into controversial matters of which the average layman knows nothing, such as the effects of gland transplantation and the method of Abrams. Concerning the latter he leaves the reader with the impression that the claims of Abrams may be true, in spite of the fact that he gives the reports of the *Scientific American* and of the British Committee.

Necessarily the book gives a great deal of medical history, most of which is correct and well put, the author writing in a manner which holds the attention and at times fascinates. The faults are such as are usually found in books of this kind written by non-medical authors, frequently illustrating the adage "A little learning is a dangerous thing." We are told that: "Of all of the microbes, not one is the friend of man," and that even the germs which sour milk are harmful to the body since they create acid, "the great foe of the body cells." One looks in vain for anything concerning tuberculosis, yet surely the names of

Villemin and Koch are more worthy of mention than some that are given, and the work which they did is justly classed among the great discoveries in the field of medicine. While the author speaks with great assurance on many controversial subjects, he still places in the realm of the unknown and mysterious certain diseases the etiology of which is positively known and the prevention of which is being successfully carried out every day.

While the book contains a great deal that is correct and useful for the public to know, in many respects it is loosely written, and while the lay reader will get much that is of value, he will also acquire ideas which are at variance with the facts, and we will still find people expressing those vague and inaccurate notions which foster the continuance of cults. An excellent introduction is written by Sir James Cantlie. We wonder how he read the book and allowed these inaccuracies to get by!

MAZYCK P. RAVENEL

Examination of Water and Water Supplies—*By John C. Thresh, M.D., D.P.H., and John F. Beale, D.P.H. (Third edition.) Philadelphia: Blakiston,* 1925. 590 pp. Price, $7.50.

The authors have incorporated in their third edition much new material which has developed in English water supply practice during and since the World War. Experiments conducted by the authors at the Langford Experimental Station, in which excess lime was used in the treatment of water from a comparatively small river, have been included in the new edition. It is noteworthy that in the discussion of the use of lime for the removal of organic matter in solution, little reference, or virtually no reference, is made to the valuable contributions which have been made in the United States. The same is true of the use of chlorine as a means of treating a municipal water supply, and the casual reader might arrive at the mistaken conclusion that this system of water treatment originated abroad.

While this book is valuable and indispensable in the reference library of the student of water supply problems, it lacks mention of many developments which have been made on this side of the Atlantic. The problem of mechanical filtration, which is of such practical value in the United States, has been disposed of in a few brief sentences, and the invaluable methods and standards for water analysis, as issued by the American Public Health Association, have not been given proper consideration.

The authors call the reader's attention to the fact that waters which a few years ago would have been considered quite unsuitable as a supply, and which no system of purification then known would have rendered safe, can now be utilized.

The various sources of water have been discussed somewhat at length, as is likewise true of the physical and chemical qualities of potable waters.

While this book will prove more valuable to the English sanitarian, it may likewise well find a place in the library of the American student of sanitary problems. Many valuable tables and 36 plates are appended.

HENRY F. VAUGHAN

BOOKS RECEIVED DURING MARCH

WATER PURIFICATION PLANTS AND THEIR OPERATION. Third Edition, revised and enlarged. By Milton F. Stein, B.S., C.E. New York: Wiley, 1926. 316 pp. Price, $3.00.

FOOD, NUTRITION AND HEALTH. By E. V. McCollum, Ph.D., Sc.D., and Nina Simmonds, Sc.D. (Hygiene). Baltimore: Published by the Authors, 1925. 143 pp. Price, $1.50.

PSYCHOTHERAPY. By Edward Wyllys Taylor, M.D. Cambridge: Harvard University Press, 1926. 53 pp. Price, $1.00.

INDIGESTION—WHAT IT IS AND HOW TO PREVENT IT. By Arthur L. Holland, M.D. New York: Appleton, 1926. 130 pp. Price, $1.25.

APPLIED MUNICIPAL SANITATION. By V. M. Ehlers, E. G. Eggert and Ella G. White. Austin: Texas Association of Sanitarians, 1925. 167 pp. Price, $1.60.

A MANUAL OF HYGIENE. By Sir William H. Hamer, M.D., F.R.C.P., D.P.H., and C. W. Hutt, M.D., D.P.H. London: Methuen, 1925. 821 pp. Price, 30/—.

DISEASE PREVENTION. By Dr. H. H. Waite. New York: Crowell, 1926. 667 pp. Price, $4.50.

THE SUPREME COURT AND MINIMUM WAGE LEGISLATION. Compiled by the National Consumers League. New York: New Republic, Inc., 1925. 287 pp.

SIXTY YEARS IN MEDICAL HARNESS. By Charles Beneulyn Johnson, M.D. New York: Medical Life Press, 1926. 333 pp. Price, $3.00.

HEALTH HABITS. PHYSIOLOGY AND HYGIENE. Book Two. By Burkard, Chambers and Maroney. New York: Lyons & Carnahan, 1925. 432 pp. Price, $1.00.

YOUR FOODS AND YOU OR THE RÔLE OF DIET. By Ida C. Bailey Allen. New York: Doubleday Page, 1926. 209 pp. Price, $1.50.

GREAT MOMENTS IN SCIENCE. By Marion Florence Lansing. New York: Doubleday Page, 1926. 265 pp. Price, $2.50.

PARASITIC PROTOZOA OF MAN. By Charles F. Craig, M.D. Philadelphia: Lippincott, 1926. 569 pp.

GIRLS' CLUBS. A MANUAL FOR LEADERS. By Helen Ferris. New York: E. P. Dutton & Co. (New Edition), 1926. 319 pp. Price, $2.00.

SOME TENDENCIES IN HEALTH EDUCATION. Review of the Health Programs in Sixteen Teacher Training Institutions. New York: American Child Health Association, 1926. 112 pp. Price, $.50.

HEALTH DEPARTMENT REPORTS

IRA V. HISCOCK

East Harlem Health House—"The Home that Health Built" is the title of an instructive report of the first 3 years' work of the East Harlem Health Center. This comprehensive report of 98 pages is exceedingly well prepared, properly illustrated, and satisfactorily printed. A store of information is here available for those interested in health centers and in the coördination of various health and allied agencies in a community.

To quote from the Foreword by Homer Folks, Chairman of the Executive Committee: "On September 1, 1921, a new era began for the people of East Harlem. A Department Store of Health and Welfare was opened in their midst. Thereafter, any of the 112,000 people of the community who sought outside assistance could find within easy walking distance someone to tell them what they needed and how to get it. For in one place, under one roof, in the East Harlem Health Center, were located all those health and relief agencies to which one may turn in time of illness or trouble. No longer did the residents need to wander about the district, from place to place, until, perhaps, tired and perplexed, the search was given up."

The experience of this health center work indicates that coördination is both profitable and logical. Local health work more than doubled in the 3-year period of the health center's existence, as compared with the pre-center period. A 23 per cent decrease in death rate is recorded for the district from 1921 to 1923, as compared with a 20 per cent decrease for New York City as a whole. Important gaps in health work were revealed by centralization, and consequently 6 new health clinics, a health information bureau, a vacation clearing bureau, and other services were established.

A united campaign for health education was inaugurated and neighborhood coöperation was secured. This education program consisted of lectures, classes, exhibits, and special projects, including a house to house canvass for carrying the health message into the homes. This resulted in some 193,055 contacts with residents outside of patients' visits to clinics or workers' visits to homes for definite health service.

A comparative study of special and general nursing methods was undertaken to show the value and cost of each type of public health nursing. One sanitary area is organized on the basis of having a group of special workers attend to maternity, infant welfare, preschool, sickness and nutrition needs, each group being under a specially trained supervisor. In another sanitary area, the division is along geographical lines, each nurse carrying one district in which she performs all the necessary health service. The special supervisors guide the work of these nurses as well as that of those in their own group in the specialized area, so that the standard of work is maintained uniformly throughout.

A total per capita expenditure of $2.79 was made available for the year ending September 1, 1924, among the 110,000 people residing in East Harlem. The per capita cost for health work alone in the third year of the demonstration amounted to $1.90, distributed as follows: health department, 61 cents; nursing, 82 cents; miscellaneous health service, 21 cents; and health center, 26 cents. During the 3-year period, all district health and social agencies of East Harlem are reported to have awakened to closer understanding, finer respect, and new consciousness of interdependence.

West Riding of Yorkshire County Council—The county medical officer, in the 36th annual report for the year 1924, gives certain data of interest to health administrators in this country. The area of the county is 1,641,462 acres, and the population is 1,522,700.

A birth rate of 20.4 and a death rate of 12.8 are recorded. The infant mortality rate for that year was 83 per 1,000 births. There were 0.02 deaths from scarlet fever and 0.05 deaths from diphtheria and croup per 1,000 persons living, the rates per 1,000 persons attacked being 10.67 and 69.01, respectively. Of the total cases notified, 86.9 per cent of scarlet fever cases and 85.1 per cent of diphtheria cases were removed to hospitals.

During 1924 much progress was made in the development of maternity and child welfare centers. At the end of the year there were 60 rate-aided and 12 voluntary centers open in the area administered by the County Council under the maternity and child welfare notification of births acts. Of the 18,370 live births, 11,055 were notified by midwives and the remainder by doctors and parents.

Open-air domiciliary shelters have been provided to persons in connection with their home

treatment for tuberculosis. These shelters are supplied without cost on the recommendation of the district tuberculosis officers, or with their approval if application is made through another source. As their usefulness for purposes of segregation, etc., is recognized, there is said to be usually a waiting list. A regular and systematic inspection of the shelters is carried out by a dispensary staff and the tuberculosis health visitors, and reports are submitted to the central office.

Pontiac, Mich.—The second annual report of the Manager of the City of Pontiac, Michigan, is one worthy of note. It has been carefully prepared, contains considerable information of special interest to officials of cities of approximately 50,000 population, and is well illustrated.

The report of the health department shows that Pontiac had last year a resident death rate of 9.2 per 1,000 population. Pneumonia was the leading cause of death; a specific death rate of 120.1 per 100,000 population (or 9.2 per cent of the total deaths in the city) was recorded. A 30 per cent reduction in deaths due to automobile accidents was recorded for the year 1925, as compared with 1924. During the year 1925 there were 80 deaths of infants under 1 year of age reported, giving an infant mortality rate of 75.5, the lowest on record for this city.

Pontiac is reported to have a modern sewage disposal plant and an abundant supply of water with a modern water filtration plant available for any emergency. Garbage and other refuse, with the exception of ashes, is collected by contractors licensed by the city, the expense being borne by the city at large. Daily collections are made from restaurants, hotels, boarding houses where not less than 25 persons have their meals, from May to October, and during the remaining months of the year collections are made from such places at least 3 times each week. Garbage is conveyed to a farm where it is fed to hogs. The health department merely serves as a clearing house for various complaints filed either by the householder or by the contractor in regard to this service.

Colorado Springs, Colo.—Bound in light blue covers and attractively illustrated by photographs of the surrounding country, the 24th annual report of the city of Colorado Springs is worthy of comment. The health department has been active in reducing infant mortality as well as in communicable disease control. The death rates of infants under 1 year of age per 1,000 births for the past 5 years have been as follows: 71.4, 60.1, 80.0, 63.6, 56.6. "We believe this improvement is due largely to the fact that much more consideration has been given in recent years to the care of prospective mothers, to the improved facilities in our hospitals, and to the increased supervision in these cases." While 152 deaths from tuberculosis were reported, only 7 of these were considered as resident deaths. The annual resident death rate per 1,000 population was 14.1. This city of an estimated population of 36,000 expended in 1925 through the health department $25,936.

Lincoln, Neb.—The annual report of the superintendent of health of the City of Lincoln for the year 1925 is published in an 8¼" x 3¼" booklet of blue covers with 19 pages of text and tabular material. A clinic for treatment of general diseases and for prenatal, infant, and preschool care is held 5 days a week from 1 to 3 P.M. A special venereal disease clinic is held daily from 9 A.M. to 12 M., and 2 evenings a week, while a tuberculosis clinic is in session every Saturday afternoon. A population of 60,000 is used in compiling rates for the year 1925. Upon this basis a total death rate of 12.9 per 1,000 population is recorded. An infant mortality rate of 63.5 per 1,000 births is noted with a rate under 1 month of 36.5. Forty-one per cent of the 1,354 births in 1925 occurred in hospitals, while only 43 births were attended by midwives.

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON

BELL, W. BLAIR, ET AL. The Treatment of Malignant Disease with Lead. *Lancet*, 1:11 (Mar. 13), 1926.

A cautious and conservative statement of the effect of colloidal lead, administered intravenously, upon patients suffering from inoperable cancer. Throughout the paper the authors stress the difficulties of treatment, the possible dangers, the contraindications to lead therapy, and the cases which did not respond to treatment. Many arrested cases are recorded.

Professor Bell's work has received so much criticism, as well as praise, that sanitarians will be interested in the discussion of this paper which is recorded in a subsequent number of the *Lancet* (1:13).

BREWER, C. M. The Bacteriological Content of Market Meats. *J. Bacteriol.*, 10:6, 1925.

A bacteriologic study of fresh and smoked meats indicating a predominance of the colon group with putrefactive organisms second: Pathogenic organisms were rarely found. The appearance of fresh meat is not an index of its bacterial content.

CECONI, J. A. Municipal Preventive Medicine as Applied to the School Child. *Boston M. & S. J.*, 194:11 (Mar. 18), 1926.

An address describing the school hygiene program of the Boston public schools.

DOUGLAS, S. A. Sanatorium-Home Treatment Aids Tuberculosis Fight. *Nation's Health*, 8:3 (Mar.), 1926.

An account of the benefits arising from a county-wide tuberculosis case-finding campaign and the results of supervised home treatment in Cattaraugus County (N. Y.).

FERRY, N. S. and FISHER, L. W. Measles Toxin: Its Preparation and Application as a Skin Test, as an Immunizing Agent, and for the Production of an Antitoxin. *Jour. A. M. A.*, 86:13 (Mar. 27), 1926.

The authors cultivated from a measles patient a green-producing streptococcus which produced a soluble toxin specific for measles. This toxin administered intradermally gave positive skin reactions in susceptible cases. Mixed with convalescent serum the toxin will not produce this reaction. Animals immunized with the toxin produced a serum with the same properties as measles convalescent serum. Susceptible persons are made negative to the test by injections of convalescent serum and one was made negative by treatment with immune animal serum.

HINDHEDE, M. Cancer Statistics—Cancer and Diet. *Pub. Health*, 39:6 (Mar.), 1926.

A statistical study, read before the Medical Association of Copenhagen. The author concludes from insufficient statistical evidence that cancer is caused by irritations of the intestinal tract (from condiments, alcohol, etc.), overnourishment, and food too rich in animal protein. His statistics indicate a decrease in cancer rates following the time of rationing (1917–1919) when "the stock of pigs was reduced to one-fifth, while the normal nutrients of the pig, barley and potatoes, were reserved for man."

FREIBERG, ALBERT H. Heliotherapy at Low Altitudes. *Jour. A. M. A.*, 86:11 (Mar. 13), 1926.

A discussion of the significance and technic of heliotherapy which stresses the superiority of sunlight over artificial actinotherapy.

GAUVAIN, SIR HENRY. Observations on Artificial Light Treatment in Surgical Tuberculosis. *Brit. J. Tuberc.*, 20:1 (Jan.), 1926.

A paper concerning the use of various types of lamps and their therapeutic effects; cautioning against too great optimism in the use of artificial light and urging its use only by specially trained persons.

KELLY, E. J. Progress of Sewage Disposal at Chicago—II. *Eng. News-Rec.*, 96:10 (Mar. 11), 1926.

The second paper describes the North Side sewage disposal plant. The first outlined the major projects of the Chicago Sanitary District.

KLINE, B. S. and YOUNG, A. M. A Microscopic Slide Precipitation Test for Syphilis. *Jour. A. M. A.*, 86:13 (Mar. 27), 1926.

A modification of the Kahn test for syphilis to permit the observation of the precipitation reaction through the microscope.

LANE-CLAYPON, JANET E. A Further Report on Cancer of the Breast, with Special Reference to Its Associated Antecedent Conditions. *Reports on Public Health and Medical Subjects* (British Ministry of Health), No. 32, 1926.

A detailed study of the histories of 1,000 women, comprising two groups—cancerous and controls—indicating significant differences in sexual activities, antecedent breast troubles, etc.

LARSON, W. P. and EDER, H. Immunization Against Diphtheria with Toxin Detoxified with Sodium Ricinoleate. *Jour. A. M. A.*, 86:14 (Apr. 3), 1926.

In an earlier paper Larson and Nelson found that tetanus and diphtheria toxin were detoxified in a solution of castor oil soap. The authors found that mixtures of diphtheria toxin and sodium ricinoleate are superior to toxin-antitoxin mixtures and that they eliminate the danger of anaphylaxis. They recommend the sodium ricinoleate method as safe and effective in immunizing against diphtheria.

LARSON, W. P., HUENEKENS, E. J., and COLBY, W. Immunization Against Scarlet Fever with Toxin Detoxified with Sodium Ricinoleate. *Jour. A. M. A.*, 86:14 (Apr. 3), 1926.

The authors used the sodium ricinoleate to detoxify scarlet fever streptococcus toxins and found they gave rapid immunity without objectionable reactions. Using this mixture enough toxin can be given in a single injection to produce negative skin tests.

As 77 per cent become negative within eight days after treatment, active immunization by means of this mixture may be used in suppressing epidemics.

GREEN, G. Paraffin Rings in Microscope Slides. *J. Lab. & Clin. Med.*, 11:6 (Mar.), 1926.

Describes an ingenious method for making circles of paraffin of a definite size: particularly valuable for making microscopical reading of Kahn test reactions described by Kline and Young.

LEWIS, DWIGHT M. Epidemiology of Scarlet Fever. *Med. J. & Rec.*, 6:123 (Mar. 14), 1926.

The author's studies convince him that scarlet fever cases are not infectious at the onset, but that the disease is spread by nasal and throat carriers—approximately 10 per cent of convalescents becoming nasal carriers. Positive identification of scarlet fever is essential to control.

MUSGRAVE, W. E. Social Service Sifts Needy from Pretended Indigent. *Nation's Health*, 8:3 (Mar.), 1926.

The method by which the financial status of applicants for treatment at the Children's Hospital at San Francisco is determined consists of a form letter sent to the family physician asking his opinion on the ability of the applicant to pay. If he replies, the family physician's decision is final, a fact appreciated by the medical profession as evidenced by an exhibit of testimonials. This idea may be applicable to official as well as non-official clinics.

NICHOLS, J. H., ET AL. Cancer in Massachusetts. *Boston M. & S. J.*, 194:9 (Mar. 4), 1926.

A statistical study of cancer incidence by age groups for both sexes, showing that under 40 years of age the cancer curve is beginning to flatten, but above the age the incidence continues to rise. The relationship of density of population and hospital facilities to cancer incidence is studied. It was found that, on the average, patients come to physicians eight months after first noting symptoms but that this interval is becoming less, and that more public education as to early diagnosis and treatment is needed.

PARK, W. H. Scarlet Fever—Its Prevention and Serum Treatment. *Illinois Health News*, 12:3 (Mar.), 1926.

The paper reviews the work of Loeffler, Moser, Gabritschewski, and Savchenko, leading to the work of Dochez and the Dicks. The preparation of toxin and antitoxin is discussed together with the therapeutic results of treatment with scarlet fever serum and the prophylactic use of toxin.

PRUCHA, M. J. and BRANNON, J. M. Viability of Bacterium Typhosum in Ice Cream. *J. Bacteriol.*, 11:1, 1926.

It was found that although after freezing the decrease in number of typhoid organisms is rapid, a small percentage are able to withstand adverse condition for long periods—some surviving 2 1/3 years.

TRACY, E. A. European School Hygiene and Other Notes. *Med. J. & Rec.*, 123:5 (Mar. 3), 1926.

A descriptive story of school medical inspection in Frankfort, Vienna, and London, with notes on the several programs for discovering and treating epilepsy.

TOPLEY, W. W. C. Experimental Epidemiology. *Lancet*, 1:10, 11, and 12 (Mar.), 1926.

Three lectures upon experimental epidemics among mice. The first is concerned with the effect of adding susceptible to infected animals in various ways and at different rates. The second is a consideration of phenomena observed such as the relation of size of dose to outcome of infection, increase in resistance to continued exposure, etc. The third answers the question: can experimental conditions be altered to cause the epidemic to fail to develop?

Hard reading for those not familiar with related studies of Amoss, Webster, and others, but well worth the effort to follow the involved reasoning.

TRANSACTIONS OF SIXTH ANNUAL CONFERENCE OF STATE SANITARY ENGINEERS. *Pub. Health Bull.*, No. 160, 1926.

A compilation of important committee reports on problems of sanitary engineering.

TUNNICLIFF, R. and HOYNE, A. L. Further Studies on a Diplococcus from Measles: Prevention of Measles by Immune Goat Serum. *J. Infect. Dis.*, 38:1 (Jan.), 1926.

A green-producing diplococcus isolated from measles, when injected into a goat, produced a serum protecting rabbits from infective material from measles. The goat serum protected humans as effectively as convalescent serum when administered on the first or second day following exposure. Intracutaneous tests showed the serum to be bactericidal for measles diplococci.

WHITE, W. C. Natural and Artificial Cure of Tuberculosis. *Technical Series (N.T.A.)*, No. 1, 1925.

Recounting the research work begun at a number of institutions with the assistance of the National Tuberculosis Association.

WILINSKY, C. F. Municipal Preventive Medicine. *Boston M. & S. J.*, 194:11 (Mar. 18), 1926.

A paper concerned largely with the child hygiene program of the Boston City Health Department.

WOOD, E. E. Housing Conditions Affect the Dwellers' Health. *Nation's Health*, 8:3 (Mar.), 1926.

An account of housing activities in European cities marred by untenable conclusions from comparisons of infant deaths with number of rooms occupied by families.

YOUNG, JAMES. Cancer—Its Causes and Control. *Med. J. & Rec.*, 6:123 (Mar. 14), 1926.

A summary of the arguments for the parasitic origin of cancer.

ZINGHER, A. Scarlet Fever, Its Prevention and Cure. *J. Med. Soc. of N. J.*, 23:3 (Mar.), 1926.

A review of diagnostic, prophylactic, and therapeutic measures available for scarlet fever.

PUBLIC HEALTH NOTES

Medical Examinations in Kings County—All eyes have been turned during the past few years to the original work being done by the Medical Society of the County of Kings in the field of periodic medical examinations of apparently healthy persons. Although many organizations and innumerable physicians and sanitarians have been interested in the health examination campaign, we have but few studies on this subject. The report of the Public Health Committee of the Medical Society of the County of Kings is therefore of unique interest and importance. The conclusions of this report based on the experience of a capable group are well worth reprinting here in full.

"The Committee is of the opinion, at the end of the year's experience with general physical examination work, that a health examination is nothing concrete or definite. At best it is typified by an honest physical examination made by an average, well-trained, conscientious physician. The psychological value of a personal physician cannot be too highly estimated.

"The Committee is of the opinion that the present knowledge of what is normal is not sufficient to justify the outlining of any standardized procedure in examination, or any scheduled interpretation of findings. Individualization of every examinee is essential and must be based upon thorough consideration of history, examination findings, occupational conditions, and home environment.

"The Committee believes that the absolute importance of constipation, overweight and underweight, and exercise, is still to be demonstrated.

"Regarding the use of a record form, the Committee studied many different ones and finds that, for the most part, each is adapted for individual needs, but all contain the essentials.

"The emphasis should be placed more on the actual systematic thorough physical examination than on the mere record form. The form used should be considered as a guide to systematic procedure, and as such it is extremely valuable.

"The importance of follow-up cannot be overestimated. This not only includes the physician's efforts to have the patient return to him for a periodical physical examination, but a careful observance on the part of the physician as to whether his patient is following all instructions.

"The Committee believes the return of a patient to the same physician who makes the first examination will give the patient the best health service. As a rule, in the normal individual, the reëxamination should be no oftener than once a year.

"Finally, the Committee is of the opinion that the need for a periodical health examination service cannot be met, with ultimate satisfaction to the patient, by the institution or clinic. The practicing physician who knows not only the personality and individuality of his clients, but also their family and environmental conditions should prove to be the most useful and satisfactory examiner—to the examinee."

Medal in Memory of Dr. Darling—The news of the tragic death of Dr. S. T. Darling, the eminent American malariologist, is fresh in the minds of many of our readers. It will be recalled that the fatal motor car accident resulting in his death and that of two other members of the party occurred in Syria, in May, 1925, where Dr. Darling, as a member of the Malaria Commission of the Health Organization of the League of Nations, was studying local malaria conditions.

The Health Committee of the League of Nations during its last session adopted the following resolution which has since received the approbation of the Council of the League:

"The Health Committee, wishing to honor and perpetuate the memory of Dr. Darling, decides to collect by private subscription a capital fund, the interest on which will be expended on a prize to be awarded periodically. This will be known as 'The Darling Prize.'

"The prize (a medal or other reward) will be awarded by the Malaria Commission of the League of Nations to the scientist who, in its opinion, has carried out recent distinguished research work on a subject connected with malaria which comes within the general scope of the Commission's investigations."

Should any of our readers desire to be associated with this attempt of the Health Organization of the League of Nations to honor the memory of a distinguished American colleague by subscribing to the fund, their contributions should be sent to the Director of the Health Section, League of Nations, Geneva, Switzerland.

Contributions will be acknowledged individually and all subscribers will be given, in due course, full information as to the regulations governing the periodic award of the prize and the administration of the fund.

Summer Courses for Public Health Workers—Public health and preventive medicine will be featured in the summer session curricula of several universities.

Columbia University, New York City, has shortened its usual 6 weeks' courses to 2 and 3 weeks with accompanying concentration of hours of attendance to accommodate health workers who cannot have an extended leave of absence. The summer session extends from July 6 to August 13. The following courses will be given: Public Health Administration and Rural Hygiene; Public Health Engineering; School Health Inspection; Epidemiology; Policies and Management of Clinics; Public Health Law; Industrial Hygiene; Factory Inspection; Mental Hygiene, Its Personal and Social Aspects; Social Hygiene; Child Hygiene; Tuberculosis, Community Aspects; Introduction to Population and Health Problems.

The University of Michigan summer session opens June 21 for some courses and closes August 13. This summer the various phases of tuberculosis will be considered under the general subject of Tuberculosis and the Community. Other courses of interest to public health workers to be offered are: Methods and Materials in Health Education; General Hygiene and Public Health; General Sanitation; Applied Nutrition; Principles and Practices of Medical Social Work and Delinquency; Mental Hygiene and Psychiatry; Community Problems.

Massachusetts Institute of Technology, through its Department of Biology and Public Health, will give the following courses: Methods of Teaching General Biology, July 6–August 3; General Bacteriology, July 6–August 27; Health Education Methods, July 6–July 27; Health Records and Statistical Procedure, July 6–July 27; Public Health Laboratory Methods, July 7–August 13.

The Pennsylvania School of Social and Health Work, 311 South Juniper Street, Philadelphia, Pa., is offering the following courses: Public Health Nursing, Public Hygiene, Child Health, School Health Education, and Nutrition.

Additional information may be obtained regarding these courses by writing to the Director of the Summer School Session of the respective universities.

Health of the Navy in 1924—The vital statistics of the Navy for the calendar year 1924 indicate that there were fewer admissions to the sick list and less disability from sickness than in any year since the World War. The death rate from disease was very low, 1.78 per 1,000 of personnel. A lower rate has been experienced but once in the history of the Navy (1.65 in 1922). In that year, however, the general admission rate was much higher, and there were more sick days in proportion to the strength of the Navy than during 1924. In each of the last 3 years the death rate from all forms of disease has been so low that no further striking reductions are to be expected in the near future. The varying epidemicity of acute diseases of the respiratory type and of communicable diseases is sufficient to determine whether the rate for a given year will be higher or lower than a previously established low record.

In 1924 there were 285 deaths from violence and other external causes, making a rate of 2.39 per 1,000 for these causes and making the gross death rate of the Navy 4.18, compared with 4.05 in 1923 and 3.23 in 1922. The admission rate for all causes, diseases, injuries and poisonings combined was 557.15, the lowest ever recorded for the Navy by a considerable margin.

The combined admission rate for the 3 venereal diseases was 137.5 per 1,000, an increase of 11.5 per cent over the rate for 1923. During the preceding 3-year period venereal diseases caused 19.9 per cent of all admissions to the sick list. In 1924 they caused 23.7 per cent, almost 1 admission in every 4. In 1924, 16.3 per cent of all sick days were due to all venereal diseases, whereas in the preceding 3 years these diseases were responsible for 14.4 per cent. There is reason to believe that a higher percentage of the men who become infected are now reporting for treatment.—*Annual Report of the Surgeon-General of the U. S. Navy*, 1925.

LABORATORY

C. C. YOUNG

A BLOOD AGAR PLATE COUNTING APPARATUS

M. E. PARKER

Technologist, Walker-Gordon Laboratory Company, Plainsboro, N. J.

A MODIFICATION of a Stewart counting apparatus for counting and differentiating colonies in blood agar plates has been used with considerable success.

In counting blood agar plates, it is necessary to use transmitted light, and while daylight is good it is not always reliable. A light source that is too intense is worthless for it will obscure the tiny hemolytic colonies. The use of a micro-lamp equipped with Corning Daylite glass proved ideal as it was discovered that the morphology of the colonies was more thoroughly discerned than when daylight was resorted to. However, in making routine counts, it soon proves tiresome to have to hold the plates at the proper distance just above the micro-lamp.

A Stewart counting apparatus consisting of a hardwood box (12" x 6" x 8") with an adjustable platform was pressed into service. The micro-lamp was placed directly under the adjustable platform with its ruled glass plate, and the correct illumination was obtained by adjusting the platform. The counting is then accomplished by viewing the colonies in the Petri dish upon the glass plate. The illumination provides the ready differentiation of hemolytic and nonhemolytic streptococci colonies appearing in the blood agar.

BLOOD PLATE COUNTING APPARATUS

The Arthur H. Thomas Company, Philadelphia, Pa., have made the necessary modifications in their stock apparatus to meet the requirements of such a blood agar plate counting apparatus as described.

CHEMICAL TREATMENT OF TUBERCULOSIS AND VACCINES IN IMMUNIZATION AGAINST TUBERCULOSIS

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THE VERY ESSENCE of therapy has always been chemical. Only in recent years could it be dignified by a term anything like "specific chemistry." Cod liver oil, for example, administered to a patient with tuberculosis, affected his whole chemical composition and the "oil" or the fat was considered the effective constituent in helping the tuberculosis case. As analysis and biological study progressed, however, it was found that at least

some of the value of cod liver oil was due to a fraction of its substance which came to be called "vitamin." Thus, this phase of it became more specific. Until someone isolates and crystallizes the vitamin of cod liver oil, writes its formula, studies its mechanisms within and without the body, and so on, it will not be quite specific.

So it has been with all drug treatment. Gross and empirical to begin with, everything, in our ignorance, was given a trial. Some of the coarse substances tried gave benefit to certain sick individuals and, from these accidental findings, came the leads to follow in chemical research for the specific elements that will cure infections from specific germs.

Ehrlich, with the gross empiricism of the past to guide him, commenced a new era in the use of simpler chemical substances, the formula of which he knew, and which he could build by the combination of simpler compounds. Then came his great success with arsenic compounds in the cure of animals infected with trypanosomes and spirochetes. Ehrlich, who had a philosophy for procedure, was not so empirical as those who preceded him; yet, in the main, he was somewhat so since he tried one compound after another until the 606th attempt brought success.

Ehrlich's success in syphilis quite naturally led to attempts to cure other diseases, including tuberculosis, in the same manner. The theories of the mechanism of his discovery were soon found to be faulty and inadequate but he had found that arsenic in some compounds killed spirochetes in the animal body. Other specific actions of other compounds on other organisms in the animal body have been found since, but nothing specific for the tubercle bacillus has ever been found. The substances tried comprise a very long list.

Many dyes such as Niagara Blue, Trypan Red; salts of mercury, arsenic, gold, copper, cyanogen, lead, silica, calcium, iodine, phenol, cresol, guaicol; formol, ether, chloroform, toluene, chalmoogra oil, bile salts, cinnamic acid, cerium, and a host of other substances—all have been used in experiment after experiment, often in trials without reason, occasionally in trials with a philosophy back of them. Paul Lewis alone tried several hundred compounds carefully prepared for him by his associate, Krusse. The results in each case were negative with the exception of tuberculin. This compound definitely prolongs life in animals in which it is used in comparison with those in which it is not used. It is, of course, a chemical mixture of complex character containing everything that composes the medium on which the bacillus is grown so that it can scarcely be classed with the synthetic simples with which the above experimenters have worked. It is, nevertheless, to chemistry that its analysis must be left. This analysis is being accomplished by a group of chemists, associated with the National Tuberculosis Association Research Committee, who are analyzing a single strain of tubercle bacilli grown on a synthetic medium of known composition. This analysis, when completed, besides furnishing a knowledge about tuberculin, will also furnish a base line experiment in bacterial chemical analysis which will serve for the comparison of other organisms and give a new opening to the chemical approach to disease.

Usually research with a specific substance begins on the effect of it in killing the bacillus in the test tube reasoning, as did Ehrlich, that a sterilizing effect was the desirable goal. Apparently this is not always the goal. Poisons for living cells exist in abundance, some of these being more poisonous for some cells than for others. Some are poisonous for all cells. Up to the present time no substance has been found that will destroy tubercle bacilli in the body and leave the cells of the body intact. Gold, in some form, has kept recurring as a specific in the laboratory and in the literature for many decades. One cannot help attributing its popularity in part to sentiment since no facts, despite all the experiments, justify its favor.

Parallels are often erroneously drawn between spirochetal infections and tubercle infections. As a matter of fact, fundamentally, there is little or no parallelism. Spirochetes are practically always extracellular organisms in the body, tubercle bacilli practically always intracellular until they become prepared for exit from the body by caseous change and softening of the group of cells in which they formerly resided. In other words, to reach the tubercle bacillus early a chemical must penetrate a cellular host for which it will probably have the same fatal influence as it is hoped that it will have on the bacilli.

Theoretically there is little hope of a chemical cure for tuberculosis in the chemotherapeutic sense of Ehrlich. There may be great hope, however, of a chemical substance that may interrupt it at some stage of its life history when we understand this history more thoroughly.

For years the tubercle bacillus has been handled in the test tube and injected into the body in pure cultures. The study of this body in its gross chemical and physical changes has been carefully carried on. Furthermore, attempts have been made to change the picture produced by injections with chemical materials, but little time has been spent in the chemistry of the living tubercle bacillus in its various strains, or on the chemistry of the living cell in which it finds its main habitation in the body, or on the change in the chemistry of these two living organisms when they live one inside the other. Only when this is thoroughly understood will we pass the barriers that now oppose our progress—barriers that are the result of our adherence to the thought of the past, mimicry in experiment, lack of painstaking observers of fact in this branch of research work.

Tuberculosis is one of the diseases in which there is hardly a justification for the use of drugs and chemicals on human patients before it is proved that these are a success on other animals. It is a natural disease of many animal groups and, besides arising spontaneously, it can with great ease be reproduced in animals from its mildest local forms to its most severe miliary types. Both physicians and patients should always bear this in mind, that until some authoritative body has passed upon a proposed cure, there is no excuse for making use of it in sick persons. (They suffer enough sadness without making their lot worse.) Such is the status of almost all that has been proposed in the way of specific treatment for tuberculosis up to the present.

VACCINES

Vaccination, as a practice to prevent sickness, begins with Jenner in 1798. It is a successful practice in a variety of diseases, and these grow in number almost annually. Therefore it is natural to include tuberculosis among the hopes of this form of protection. There is direct evidence that protection can be produced by vaccination both with toxins of the dead tubercle bacillus, with avirulent living bacilli, and with bacilli which while virulent for some species are avirulent for others if used in the species for which they are avirulent.

Tuberculosis is not like those diseases for which we use vaccination in practice. Vaccination in tuberculosis, at most, increases the resistance to one or two subsequent infections; it never protects absolutely. The increased resistance passes away quickly, probably within a year. Enormously serious, however, is the fact that if vaccination is carried out with living organisms (for this, after all, is the only vaccination that has given great hope), the living bacilli remain alive for years in the vaccinated animal and may, at any time, escape and be transferred to a new host more susceptible than the vaccinated one. Thus the cycle of the parasite from host to host is kept active. The supposed avirulent strains may even have the spores of virulent strains among them and add new danger in the propagation of more virulent organisms. Such suggestions as have been made for vaccination must always face this grave danger in the use of tubercle bacilli. We really know comparatively little of the life history of the tubercle bacillus in the body in spite of our great mass of knowledpe about tuberculosis. In view of the newer studies in bacteriology, very likely the granules which are found within the organism and beside it, free in the medium, in the body cells and caseous material, are a living factor in its history and must be understood before we can interpret many of its vagaries in infection.

Vaccination in tuberculosis as proposed today is not a practical procedure. There is little excuse for testing it out on human cases when cattle experiments to prove its value are so much easier to follow. In fact if there is a blessing in tuberculosis, which I doubt, it may be in the fact that we can follow it in cattle and study practically all of its phases without experimenting on human cases. If only part of the money spent in condemning and killing valuable cattle were devoted to a study of its epidemiology and bacteriology there is little doubt that in a few years not only would all the human family benefit, but our farm and cattle industry would be much more profitable.

The later method of vaccination, proposed by Calmette, differs from the past essentially in that the gastrointestinal tract is used as the avenue of feeding the tubercle bacilli vaccinating dose. Dr. Calmette and his associates also use for vaccination an organism called BCG (Bacillus Calmette Guérin) which is specially grown on bile potato. (It is hard to believe that this differs from other avirulent strains for certain species of animals.) Animals so vaccinated develop tuberculin sensitiveness and some protection, but there is always the danger, as Calmette points out, that the vaccinating organisms remain alive in the body of the vaccinated animals. The use of the gastrointestinal tract as the avenue of vaccination

as v. Behring formerly suggested, offers some reason for further study. The use of the vaccine in children does not however appeal to physicians with whom I have discussed it in this country—at least, not until it has been proved valuable beyond doubt in the cattle disease.

The peculiarity of tuberculosis infection lies in the knowledge that the tubercle bacillus in its early stage is an intracellular parasite. Later it is a parasite with a protective caseous environment. This does not theoretically suggest great hope for its control by vaccination. The long life of tubercle bacilli in the host without producing disease, then the appearance of disease under depressing conditions, is in sharp contrast to our acute self-limited maladies in which vaccination is so helpful.

VITAL STATISTICS

LOUIS I. DUBLIN, PH.D.

The Death Toll of Maternity—The experience of the Metropolitan Life Insurance Company during the last 14 years in the field of maternal mortality is remarkable for the very slight improvement that has occurred in contrast to the very marked betterment that the policy holders have experienced with respect to so many other diseases. The importance of maternal conditions is emphasized by the fact that they rank among white women, aged 15 to 44 years, second to tuberculosis among the causes of death. The trend of these maternal conditions is only slightly downward among the nearly four million white women, ages 15 to 44, insured in the company's industrial department. The high points of the mortality from these causes were reached in 1918, 1919 and 1920 (101.3 in 1918). These were years characterized by the prevalence of influenza. Since 1921, however, the rates have continuously fallen (from 68.5 per 100,000 in 1921 to 59.1 in 1924) and are perceptibly below those of the earlier years of the period beginning with 1911.

The several diseases and conditions under this head have behaved differently. In the first place, the "accidents of pregnancy" (the definitely antepartum conditions, abortions, miscarriages, ectopic gestation, etc.) have shown a slightly upward trend; and the "accidents of labor" (including malpresentation, "difficult labor," dystocia, caesarean section and other operative interference) a more pronounced rising tendency. Both of these conditions react to the prevalence of influenza; but the latter, in particular, has registered much higher death rates in the last 4 years of the period than were recorded prior to the influenza epidemic.

On the other hand, puerperal septicemia shows a gratifying decline. The influenza epidemic did not affect the mortality from this disease. In fact, the lowest rate during the entire series of 14 years was experienced in one of the influenza years. There was an evident but not very marked decline in puerperal albuminuria which, like septicemia, was not affected by influenza. The slight improvement that has occurred in the puerperal diseases as a group must be ascribed, then, to the declines in the mortality from puerperal septicemia and albuminuria and convulsions. These are the very conditions which would respond to the care which women are receiving during pregnancy from visiting nursing and other public health agencies.—*Stat. Bull.* M. L. I. Co., 6:1–3 (Nov.), 1925.

Health Progress in Johannesburg, South Africa—A review of health conditions in Johannesburg from 1902 to 1925 shows that this city is entitled to rank among the healthiest cities in the world with its low death rate and splendid climate. The death rate of the white population has fallen from 17.5 per 1,000 in 1905 to 9.76 in 1923–4, and that of the natives from 33.6 in 1910–11, the highest recorded, to 19.06. The Eurafrican and Asiatic populations do not, however, show the same progressive improvement; their death rates have remained high and were 29.43 and 26.70 respectively in 1923–4. Nevertheless, the decrease for the whole population is marked, for in 1903–4 it was 23.9, and in 1923–4 had fallen to 14.61. The birth rate among whites is comparatively high, although slightly decreasing in recent years, and

the infant mortality, 81, low. The maternal mortality was 3.47 in 1923–4. A phenomenal decrease is shown in the incidence of enteric fever, from 6.26 per 1,000 of white population, with a death rate of 0.64 for the 5 years ending June 30, 1908, to 0.81 case and .011 death rate per 1,000 for the 5 years ending June 30, 1924. For many years before and during the South African war enteric fever had its home in South African cities. While other diseases show decreases, there has been a steady increase in deaths from cancer; among whites the mortality rates in each of the 5-year periods from 1903 to 1923 was 0.43, 0.42, 0.62 and 0.70 per 1,000. In 1923–4 it had risen to 0.76. Nearly half of 1,252 recorded deaths from this disease were due to cancer of the stomach.—*Brit. M. J.*, 2:1087 (Dec. 5), 1925.

Tuberculosis in Filipinos—A study of statistics and conditions in the Philippine Islands and in Manila shows that Filipinos have approximately two and a half times as much tuberculosis as Americans. The high proportion of pulmonary tuberculosis as shown in the classification of types, and as clearly indicated by the relatively high tuberculosis mortality in the older age group, indicates beyond question that tubeculosis is no new disease among the Filipinos, but that the disease has doubtless been present for centuries and its presence has resulted in the development of that degree of tolerance, or ready acquirement of immunity, which is spoken of as tuberculization in a race. The high continuing morbidity and mortality are due to overcrowding, poor hygiene and inadequate sanitation. Morbidity and mortality in the upper age groups are particularly high as compared with both the white and colored populations of the United States. The trend of tuberculosis mortality in the Philippines is now (1923) apparently upward and, while some of this may be due to better diagnosis, faults of hygiene and sanitation must bear most of the blame for preventing the rates in these people from following the downward course of the rates of other civilized countries.—G. R. Callender and M. W. Hall, *Am. Rev. Tuberc.*, 12:273–313 (Dec.), 1925.

Mental Disease Among Negroes in the United States—The data in this study are derived principally from the special census of institutions for mental disease taken by the Federal Census Bureau as of January 1, 1923. It was found that the relative increase of negro patients in institutions for mental disease in the United States from 1910 to 1923 was greater than that of white patients. The rate of negro resident patients in 1923 was greater than that of white resident patients in 37 of the 47 states. It seems probable, that were equal institutional provision made for patients of both races, the rate of negro resident patients would everywhere exceed that of white patients. The rate of resident negro patients was much higher in the northern geographic divisions than the southern, due probably to the lack of institutions for negroes in the South. The rate of first admissions in 1922 was higher among negroes than among whites in 31 states and the rates of negro first admissions in nearly every psychotic group are higher in New York state than in the country as a whole. Rates of mental disease among negroes are relatively high in early age groups, and males exceed females among negro resident patients and first admissions. Syphilitic psychoses are more frequent among negroes than among whites. The general recovery rate in 1922 was higher among negro patients than among white patients, but the improvement rate among whites was higher. The general death rate in 1922 was much higher among negro patients than among white patients. The rates for males were higher than those for females in both races. Death rates in most of the psychotic groups in 1922 were higher among negro patients than among white patients.—Horatio M. Pollock, The State Hospital *Quarterly*, 11:47–66 (Nov.), 1925.

Outcome of Mental Diseases in the United States—From the special census of hospitals for mental disease taken by the Federal Census Bureau as of January 1, 1923, we find that individual schedules were received for 265,829 resident patients, 71,676 first admissions, 16,133 readmissions, 51,304 discharges, and 25,436 deaths. Of the 51,304 discharges, 23.3 per cent were discharged as recovered; 46.2 per cent as improved; 19.1 per cent as unimproved; 9.6 per cent as without psychosis and 1.8 per cent as unascertained.

Recovery rates naturally vary greatly in the several groups of psychoses. The highest recovery rate is found in the drug group with 43.2 recoveries per 100 admissions, the next highest in the alcoholic group (38.5 per 100 admissions) and the next in the manic-depressive group (35.4). Very few recoveries are reported in the so-called organic groups, but a large proportion of the patients in these

groups improve sufficiently to be discharged. In the large dementia-praecox group the recovery rate in 1922 was only 6.4, but the discharged improved rate was 33.6 and the discharged unimproved rate 16.0.

Female patients fare somewhat better than male patients in being discharged, both the recovery and improvement rates of the former being higher. This is due principally to the excess of males in the general paralysis group, which yields practically no recoveries, and to the excess of females in the manic-depressive group, which yields a high percentage of recoveries. The highest rates of recovery occur between 35 and 45 years although they vary comparatively little between the ages of 15 and 60. In the manic-depressive psychoses the recovery rate is highest among patients 15 to 25 years of age, although there continues to be a high rate of recoveries in this group in every age period up to 80 years. In the alcoholic psychoses the recovery rate is much higher in the age groups below 30 years than in the groups above that age. Most recoveries occur during the early periods of hospital life, 44.3 per cent occurring during the first 4 months of hospital life and 75.4 per cent within the first year.

Individual schedules were received for 25,436 of the 25,656 deaths reported by these hospitals in 1922. In 1910 the general death rate of patients was 80.2 per 1,000 patients under treatment. In 1922 this rate had fallen to 74.3. The lower rate in 1922 confirms the belief that the care of patients with mental disease has improved considerably since 1910. A remarkably wide range of death rates is seen in the various psychoses, high rates being seen in the rate for those with cerebral arteriosclerosis, 305.9 per 1,000 under treatment, 295.0 for those with general paralysis, 275.0 for those with brain tumor and 248.7 for senile cases. The lowest death rate is seen in the group of those with psychoneuroses and neuroses. General paralysis, tuberculosis and apoplexy were the greatest causes of death among the principal diseases.—Horatio Pollock, *Ment. Hyg.*, 9:783–804 (Oct.), 1925.

Vital Statistics, England and Wales, 1925—The death rate for England and Wales in 1925 was 12.2 per 1,000 as in 1924. London had a death rate of 11.7, the 105 county boroughs and great towns including London a rate of 12.2 and the 158 smaller towns a rate of 11.2. The birth rate of 18.3 was the lowest ever recorded except for 1917 and 1918. The rate for London was 18.0; for the 105 county boroughs and great towns it was 18.8 and for the 158 smaller towns, 18.3. The infant mortality of 75 for England and Wales was the same as for 1924. London's rate was even lower, 67. For the county boroughs and great towns the rate was 79 and for the smaller towns, 74.—*Med. Off.*, 35:44 (Jan. 30), 1926.

Germany for the Third Quarter, 1924—In the third quarter of 1924 the general mortality rate in Germany (inclusive of stillbirths) was 11.4 per 1,000 as compared with 13.2 for the corresponding period in 1923, and 12.5 for 1922. The decrease is due partially to the reduction in infant mortality. The infant mortality rate, computed on the basis of the total number of living births was 13.8 per cent for 1923, while in 1924 the rate had been reduced to 10.9 per cent, the lowest rate recorded in Germany.

The excess of births over deaths, the natural increase of population, was 137,641 for the third quarter of 1924, as compared with 111,648 for the corresponding period of 1923. When applied to the total population these figures yield, respectively, 8.8 and 7.3 per 1,000 for the years 1924 and 1923, which is a very respectable showing, although the outcome falls far behind that of the years immediately preceding the war.—*Jour. A. M. A.*, 86:568 (Feb. 20), 1926.

Paris, First Nine Months of 1925—Births, deaths, divorces and marriages decreased in Paris during the first 9 months of 1925, as compared with a similar period in 1924. Births increased by 11,114 and the number of deaths during the first 9 months of 1925 showed an increase of 10,000 over that of the previous year. Marriages decreased by 1,909 and divorces nearly as many.—*Toledo Blade*, Toledo, Ohio (Feb. 4), 1926.

Australia and Immigration—In 1921 the population of Australia was 5,435,732, unevenly distributed over 2,974,581 square miles. Of this population, 43 per cent dwelt in the 6 capital cities, 19.5 per cent in other towns and 37.5 per cent are classed as rural population. About 42 per cent of Australia is arid; of which 20 per cent of the whole is almost useless for stock and 22 per cent is fair pastoral country in drought. About 34 per cent is good pastoral country; about 21 per cent is fair temperate farming country. There is probably room for 20 million folk in the east and south, engaged

in agriculture and manufactures before any serious congestion can arise.—Griffith Taylor, *Geog. Rev.*, June, 1926; ab. *Eugenics Rev.*, 11:25 (Feb.), 1926.

VITAL STATISTICS IN 1925

Pennsylvania—Pennsylvania's death rate of 12.4 in 1925 remained almost stationary when compared with that of 1924. Tuberculosis claimed 77.6 per 100,000; cancer, 92.5; diphtheria, 10.5; typhoid fever, 4.7; scarlet fever, 3.5; measles, 4.9; and whooping cough, 6.3. The infant mortality was 81. As compared with 1924 there was a definite decline in 1925 in the death rate from diphtheria and tuberculosis, with slight decreases in the rate from scarlet fever and whooping cough. On the other hand the death rate from measles was higher in 1924, with slight increases also in the typhoid fever and cancer rates. Infant mortality also was somewhat higher than in the preceding year.—*Gazette Times*, Feb. 23, 1926.

New York State—The year 1925 was one of the healthiest in the history of the state. Since the organization of the State Department of Health 40 years ago, the general death rate was lower only once—in 1921; the volume of sickness was the most favorable in recent years. On the other hand, the 1925 rate of 20.6 was a minimum in the downward trend of the birth rate. The decline in the death rate to 12.7 in 1925 has been uniform since 1890 when the maximum rate of 21.4 probably marked the culmination of years of effort for a complete registration of deaths. The 1920 rate was 13.8; that of 1915, 14.8; 1910, 16.2; 1905, 16.7; 1900, 18.1; 1895, 19.4; and 1890, 21.4. The rate of infant mortality, 68, has never been lower. The stillbirth rate, 43 per 1,000 births in 1925, has remained about the same for the last few years. About one-third of all deaths in 1925 (29.4 per cent) were due to organic diseases of the heart, apoplexy, and diseases of the arteries. Pneumonia and cancer claimed 19.7 per cent. The entire group of external causes (103.6 per 100,000 population) was responsible for more deaths than tuberculosis, all forms (90.9). As compared with 1924, there was less mortality from pneumonia and tuberculosis, while the group of cardiovascular diseases, cancer, and external causes, claimed more deaths than a year ago. The rise in mortality in the last group was mainly due to an increase in automobile accidents and to the excessive heat of last summer, which resulted in hundreds of deaths in the state. The death rates from measles (2.5), scarlet fever (1.6), diphtheria (8.9) were lower than in any of the last 40 years. The death rate from whooping cough (4.3) was lower only once before.—N. Y. State *Weekly Health News*, Feb. 22, 1926.

Boston—The death rate in Boston for 1925 was 14.80, as compared with 14.07 in 1924. It is interesting to note that 17 per cent of the 1925 deaths were of non-residents. The birth rate of 23.56 was the lowest ever recorded in Boston. It is to be noted that the death rate from puerperal causes has been decreasing steadily since greater attention has been directed to the matter, being 8.1 in 1922 and 6.3 in 1925. The total deaths from communicable diseases were in excess of last year, increases showing in the number of deaths from typhoid fever, measles, whooping cough, anterior poliomyelitis, encephalitis lethargica, cerebrospinal meningitis and lobar pneumonia; and with the exception of poliomyelitis these diseases showed an increase in the number of cases. There was a marked lessening of deaths from diphtheria, the total for the year being 99 as compared with 168 for 1924. This gives a death rate from this disease lower than for any year in Boston's history. Heart disease, nephritis, and bronchopneumonia showed an increase over last year, and this was particularly so in the case of heart disease, with an increase of 254 deaths. Cancer was slightly lower in 1925 than in 1924. Deaths due to cerebral hemorrhage also show a decrease, as do those from premature birth, alcoholism, diabetes mellitus and diarrhea and enteritis.—Boston *Monthly Bulletin*, Health Department, Jan., 1926.

Fall River—The death rate in Fall River for 1925 was 12.25 as compared with 12.22 in 1924. For the first time in the history of the city, in 1923 the infant mortality rate fell below 100, the rate for the year being 91 per 1,000 births. The 1924 and 1925 infant mortality rates were 93. There were but 2 deaths from typhoid fever in 1925. The number of deaths from pulmonary tuberculosis showed an increase over 1924, being 97 in 1925 and 94 in 1924. There was an epidemic of measles in the latter part of 1925, and there were 32 deaths in 1925 as compared with none in 1924. Influenza deaths also increased from 15 in 1924 to 29 in 1925. On the other hand, diphtheria cases and deaths decreased from 190 and 18 to 133 and 15, respectively, the number of cases reported being the

lowest since 1916 and the deaths the lowest since 1909, when there were but 10 deaths. The cases and deaths from scarlet fever were halved, being 130 and 1 in 1925 as compared with 259 and 2 in 1924. Whooping cough cases and deaths dropped from 328 and 23 to 166 and 14, respectively. Lobar pneumonia with 207 cases and 75 deaths shows the largest number of cases since 1920 when there were 210, and the greatest number of deaths since 1918, the year of the influenza epidemic, when there were 100 deaths. The cases and deaths for 1924 were 126 and 51, respectively.—Fall River *Monthly Bulletin*, Board of Health, Jan., 1926.

New Orleans—The comparative death rate for the year 1925 (white 14.33) as compared with 1908 (white 16.85), the date immediately preceding the year in which the public water filtration works went into service, shows a lower white rate of 2.52 per 1,000, equivalent to a saving of 794 lives, based on the present estimated population of 315,000; on the other hand, the comparative colored death rates for the same years, 31.17 in 1925 and 26.69 in 1900, shows a higher death rate for the colored of 4.48 per 1,000. Public water supply is of course but one of the factors in lowering the white death rate. The increased negro death rate shows that negroes have not availed themselves of the improved sanitary conditions. The death rate of the white population for 1925 (14.33) is only .59 higher than the lowest death rate on record, 13.74 for the year 1921. The death rate of the colored population for 1925 (31.17) is 8.6 higher than the lowest colored death rate on record, 22.57, for 1921.—New Orleans *Monthly Bulletin*, Nov. and Dec., 1925.

Baltimore—Baltimore's death rate for 1925 was 14.7, which was slightly higher than the rate for 1924, which was 14.4. The infant mortality for 1925 was 82.8 as against 83.6 for 1924. Typhoid fever showed an increase of about 40 per cent over the 1924 rate. There were only 14 cases of smallpox and no deaths during the year, although this disease existed in epidemic form in many nearby places. There were but 5 scarlet fever deaths, although there were 1,121 cases, giving a fatality rate of less than ½ per cent. The number of deaths from diphtheria (48) was the lowest in the records of the health department. Alcoholism claimed 73 deaths, an increase of 17 over 1924.—Baltimore *Health News*, Feb., 1926.

Salt Lake City—The death rate for 1925 was 11.8, as compared with 12.9 in 1924. For residents alone the death rate was 8.9. The number of births was 3,456 and the number of marriage licenses issued 2,524.—Annual Supplement to the *Monthly Bulletin*.

Richmond, Calif.—The death rate of Richmond is one of the lowest in the United States, being 4.63 in 1925 and 4.8 in 1924. There have been no serious epidemics and the year has been one of the best from a health standpoint. Diphtheria is almost an unknown word both in the city and in the county of Contra Costa. The same is not true of smallpox, but it is hoped that vaccination will wipe it out. Of the total 152 deaths 21 were due to accidents.—California *Weekly Bulletin*, Jan. 23, 1926.

Health and Sanitation in Nicaragua—The general sanitary conditions of the country as a whole are good at the present time. There are no major epidemics of any dangerous communicable diseases present anywhere in the country. Yellow fever has not existed here since the epidemic of 1919; smallpox, while occurring occasionally in sporadic cases, is not epidemic anywhere in the country; bubonic plague has never made its appearance in the country; typhoid fever is present, but not epidemic in any of the larger cities; typhus fever is unknown; malaria is endemic in all of the coastal region, but has not been excessively prevalent for more than 4 years. Measles, chickenpox, whooping cough, and other similar diseases of childhood are present and exist in semi-epidemic form in several sections. The measles epidemic of last year did tremendous damage, causing hundreds of deaths among the poorly nourished children of the poorer classes. At present, measles is confined to a few sporadic cases in the towns and cities which were infected last year. Influenza is not present in epidemic form. There is some dengue fever but the campaign for the control of disease-bearing mosquitoes which has been carried out in all the large towns and cities is probably responsible for the small number of cases of this fever. Since, July 1, 1925, a national department of health has been established.—*Pub. Health Rep.*, 41:165–166 (Jan. 29), 1926.

INDUSTRIAL HYGIENE

DR. EMERY R. HAYHURST *

Acute Dermatitis Among Painters—This report is based on a clinical study of 5 patients who reported at the plant hospital for relief from a troublesome skin eruption, and also on certain animal experiments made to ascertain the substances in the paints and thinners used which were responsible for the trouble. One man had been employed for 16 years with more or less trouble throughout; a second man was employed for 2 years with skin eruptions for the last year; another for 1½ years with skin eruption the last part of that time; another, an apprentice boy, afflicted for only a short time; and the last, an apprentice employed in the pattern shop where, the day before the eruption appeared, he cleaned a machine using cotton waste saturated with naphtha. The author concludes that the solvents—turpentine, thinner (composed of turpentine and naphtha) and naphtha alone appear to be the chief offenders in producing the dermatitis. In the last 2 cases reported, naphtha was the only solvent to which the patients were exposed. The eruption appeared only on the hands and forearms and was characterized by a dry skin with redness, small blisters, which tend to become larger by coalescing, and by some edema. The victims complained much of burning and itching. Desquamation accompanied the healing. A 1:1000 solution of potassium permanganate applied daily gave immediate relief and promoted healing. The animal experiments showed that the paint substances themselves did not produce any marked skin reaction other than removing the hair, but that the solvents named produced, in addition, inflammation. Blistering did not occur in animals' skins but was a constant feature with the patients. The author advises such workmen to clean up parts wet with the solvents promptly, with plain soap and warm water and then dry the skin. [A number of outbreaks of this "turpentine" dermatitis have come to the attention of the abstractor during the past 2 years in Ohio. The products of a number of companies have been involved. The substance appears to be one of the newer products of distillation of wood and, while it appears to have superior qualities as a turpentine product and is usually called "turpentine" in the trade, it appears to have quite irritant effects upon the skin of most workmen. In a recent epidemic in one plant employing not over 10 men who could have been exposed, 7 were afflicted. The exposure consisted principally in washing paint and bronze powder off of the hands several times a day.—E. R. H.]—J. A. Turner, *J. Ind. Hyg.* (July), 1925, Vol. 7, No. 7:293.

Lead Poisoning in Broken Hill District, Australia—Toward the end of 1924 occurred a large increase in the number of employes at the lead smelters incapacitated by lead poisoning. Such occurred in the face of the fact that thousands of pounds had been spent in improving the working conditions. A royal commission was appointed to determine the cause and the best means of preventing the same. The commission found: (1) The cause of plumbism is the taking into the body of lead-bearing dust or fume. It was also of the opinion that carbon monoxide poisoning existed in certain cases as a complex which ran concurrently with the lead poisoning. (2) The principal causes of the increase in reported cases may be stated as follows: (a) the increased tonnage of lead-bearing material being handled, (b) the change in the physical character of the concentrates treated, owing to a greater proportion of fine slime products, and a possible increase in the amount of dust, and (c) the change in the composition of the working force whereby the number of southern Europeans was increased, among whom the incidence of industrial disease is greater. As an example, in 1922 there were 56 cases, in 1923, 89 cases, and in 1924, 234 cases. (3) The commission agreed upon essential principles of prevention along the lines of the control of fumes, the reduction of dust, and the education of the personnel. To accomplish this, the Broken Hill Associated Smelters are

* The editor of this Section will gladly receive contributions from members. Please address all communications to Hartman-Ohio Bldg., Columbus, O.

to be brought solely under the Act of the Mines and Works Inspection which shall draft proper regulations and see that such regulations are observed under an official of the Mines Department. Also that a workmen's check inspector be appointed and that sufficient conferences be arranged between all officials concerned. Also that a special compensation act be passed for the Broken Hill Smelters question including the compensation of carbon monoxide poisoning. In general, it was unanimously evidenced that a respite once a week is desirable in the health interest of the men and that work shifts should changed from 7 to 6 days per week.—Keith R. Moore. *Health* (Australia), III, 6:177 (Nov.), 1925.

Industrial Diseases from an Analysis of Factory Inspection Reports—Dr. E. J. Neisser, of Berlin, in 1907, began the publication of international analyses of industrial hygiene and pathology as contained in factory inspection reports. Dr. Neisser's death soon ended this work. The scheme was re-started by Dr. Brezina in collaboration with Professor Teleky in 1921 which contained data for the year 1913 and for the period 1914–1918 and, later, for the year 1919. The present article covers the years 1920–1922 and is by Dr. Brezina. Reports for 1923 and 1924 will be dealt with later. The present report takes up the annual analyses for Prussia, Bavaria, Saxony, and Austria, all rather briefly. The report for Belgium is more extended as well as that for France, the United States, the Netherlands, and Switzerland. The statistics for the states of Illinois, Massachusetts, New Jersey, New York, and Ohio are given in tabular form. In New York it is stated that, whereas there were 710 cases of lead poisoning with 101 deaths in the years 1912–1920, there were only 34 cases with 3 deaths in 1921–1922. Other occupational diseases were phosphorus poisoning, 1,316 cases with 127 deaths (for the period 1912–1920), and only 63 cases with 3 deaths in 1921–1922. Compressed air diseases came next with 472 cases and 4 deaths, and only 24 cases in 1921–1922. The figures for Ohio showed for the year 1922 a total of 751 cases of which 521 were dermatitis, 178 lead poisoning, 29 benzol, and the balance scattered. A table is presented showing the cases reported for Great Britain for the years 1921 and 1922 with lead poisoning showing 230 and 247 cases respectively, carbon monoxide poisoning 77 and 111 cases respectively, epitheliomatous ulceration 32 and 32 respectively, chrome ulceration 29 and 42 respectively, and the balance scattered. The Netherlands reported a total of 1,967 cases for the years 1912–1923 with lead 328, carbon monoxide 48, anthrax 46, purulent inflammation of the knee bursa 38, dermatitis 218, pneumonia 201, nystagmus 29, conjunctivitis 24, arthralgia 21, tenosynovitis and subcutaneous cellulitis 586, cataract 33, mucous membrane ulcerations 177, keratitis 144, aniline 16, benzol 10, and the balance scattered. Switzerland for years 1918–1921 paid compensation for 411 cases of poisoning. In 1922 the acute poisonings were, carbon monoxide 29, chlorine 7, nitrous gases 5, benzol 7, mercury 5, lead 6, lighting gas 11, and the balance scattered. Slow poisoning, which is separately classified in Switzerland, included lead 32, aniline 8, benzol 8, inorganic acids 9, mercury 6, and carbon dioxide 9, the balance being scattered. Compensation was also paid for 48 cases of skin disease, and the office voluntarily paid compensation for some 200 cases of poisonings not on the list and not therefore legally entitled to compensation.—*Internat. Labour Rev.*, 13, 2:237–248 (Feb.), 1926.

"Occupation and Health"—The International Labour Office has thus far published 21 brochures bound under 3 covers in its series of some 100 such brochures contemplated. Each brochure has first been compiled by a writer or reporter, then submitted to a committee of experts (chemists, pathologists, physiologists, etc.) which has passed upon the evidences submitted and the whole is then finally carefully edited with as great briefness of statement as possible. A similarity of form is used for each substance or process described. The usual form is to discuss in order (taking *hydrocyanide acid*, for example), the chemistry, manufacture, sources of intoxication, toxic action, statistics, symptoms, diagnosis, demonstration, preventive measures, legislation and a brief bibliography. By this means, from 3 to 10 pages usually suffice to cover each item completely and with accuracy. The scheme of compilation deals with three main groups of questions: the work, the worker, and the environment. A list of 66 expert collaborators is doing the reportorial work, some of these being Americans but the greater number are German, Swiss, Italian, and other Europeans.

Thus far the brochures are numbered and entitled as follows: (1) Introduction, (2) Hydrocyanic Acid, (3) Mercury, Compounds of Mercury, Mines of Mercury, (4) Carbon

Monoxide, (5) Hair Cutting (hatters furriers' processes), (6) Phosphorus and its Compounds, (7) Lucifer Matches, (8) Benzene (Benzol), (9) Tellurium, (10) Nickel Carbonyl, (11) Litharge, (12) Fulminate of Mercury, (13) Lead Colors, Lead Compounds, (14) Red Lead, (15) Artificial Abrasive and Grinding Wheels, (16) Tetrachlorethane, (17) Formaldehyde, Formalin, (18) Sugar (sugar refining industry), (19) White Lead, (20) Paraffin, (21) Diamond Cutting.

The work is under the general supervision of Dr. L. Carozzi, Geneva, Switzerland. The terms of subscription to the entire encyclopedia are, for the brochure edition, of which there are to be approximately 100 items, $8.00; the volume edition $8.00, or the two combined editions $15.00. Those in America may be purchased conveniently through the World Peace Foundation, 40 Mount Vernon St., Boston 9, Mass.

Bibliography of Industrial Hygiene—In addition to its brochures on "Occupation and Health," the International Labour Office began in 1923 a bibliography of industrial hygiene, the same being printed in French, German and English, with 4 issues annually and numbered from 1 up. The last one, number 11, for the quarter ending September, 1925, has recently come to hand. The bibliography is classified, using each of the three languages concurrently, as for example, "Poussieres—Dust—Staub." The general headings, much subdivided, include industrial hygiene, industries, hygiene of the worker, physiology and pathology including intoxications and the various poisonous substances and hazards to health, accidents, and legislation. Each issue also includes a list of the authors contributing articles in the wide literature perused and included in the bibliography. The price for the four quarterly issues is $1.00 per annum. Same may be procured from the World Peace Foundation, 40 Mount Vernon St., Boston 9, Mass.

Safe Handling of Chlorine—This is No. 71 of the series of Safe Practices Pamphlets edited by the National Safety Council, 108 E. Ohio St., Chicago. Chlorine is a relatively safe commodity to handle and use, once its properties are understood. Accidents caused by it have been relatively few and it is expected will be fewer. It is most economic to provide the consumer with chlorine in the liquefied state. Large quantities are used for bleaching, fire extinguishing materials, solvents, antiseptics, anesthetics, fumigants, purification of drinking water, and in connection with disposal of sewage and industrial wastes. The properties of chlorine are discussed. Also its physiological effects in which it is pointed out that the gas is a powerful respiratory irritant but that it gives warning of its presence by both sight and smell from which all spasmodic breathing must be avoided. Small leaks in enclosed spaces sometimes cause coughing and nausea, and workmen cannot become hardened to it. "It is significant that it produces no cumulative effects and that complete recovery from the effects of mild exposure to chlorine is always made. As chlorine is particularly irritating to persons afflicted with asthma and certain types of chronic bronchitis, such persons should not be exposed to it." The greatest danger comes from a sudden exposure to a high concentration as from a broken valve or pipe. On this account, suitable gas masks should be available. Free ventilation should be provided. Spraying of water over the liquid which has escaped is helpful, also solutions of sodium bisulphite and sodium bicarbonate. Precautions are given in detail for handling cylinders of chlorine, also tank cars and one-ton containers—these both by land and sea. Emergency measures are briefly as follows: avoid panic, refrain from coughing, keep mouth closed, avoid deep breathing, keep the head high (as chlorine seeks the lowest possible level), withdraw from the affected area, stop escape of gas when practical, stand leaking cylinders upright, and all other leaks upward where possible, drain escaping liquid to lowest point, and treat affected persons as follows: (1) remove to fresh air, place on back and instruct to resist coughing; (2) call physician immediately; (3) if patient is conscious give *one* of the following immediately—one-half teaspoonful of essence of peppermint in hot water, or a moderate dose of (acetanilide), or a moderate stimulant; and (4) if unconscious and not breathing, use the prone pressure method of producing artificial respiration. — *National Safety News*, 13, 3:39–43 (Mar.), 1926.

CHILD HYGIENE

MERRILL E. CHAMPION, M.D.

DENTAL HYGIENE

The Child Hygiene Section this month is given over largely to a presentation of the subject of dental hygiene. This is done through the use of brief, specially prepared articles, and through the use of many short abstracts. Other phases of child hygiene will be similarly treated in subsequent issues.

Save these baby teeth. Good nutrition and proper care of the mouth will insure a strong second set of teeth.

DENTAL HYGIENE PRIMARILY A CHILD HYGIENE PROBLEM

Dental hygiene aims to maintain a clean, healthy, functioning mouth. Two agencies are necessary to secure it, home care and attention from the dentist. Without home care the dentist's efforts are seriously handicapped and it is obvious that home care alone cannot ward off decay and disease. There is one other essential factor and that is the age at which the work is started.

It is much easier to educate the young child in habits of cleanliness. General hygiene demands bodily cleanliness from the start, and mouth hygiene is an important part of the effort to keep healthy, particularly in view of the present-day knowledge of the serious organic and systemic diseases that may arise from a diseased mouth.

The child whose mouth is neglected until decay and toothache drive him to the dentist for relief, carries too great a handicap to be overcome. In a sense he needs, more than the adult, all the nourishment provided by well masticated food, not only to sustain life, but to supply the tremendous demand for growth and development. Impaired function at this period results in a retarded and diminished physical growth.

The Forsyth Dental Infirmary for Children has just issued some startling figures which prove conclusively that dental care, started sufficiently early, before decay has appeared, and followed up with periodic and systematic attention until the 14th year, can and does land the child at the threshold of adult life with a clean, healthy mouth, with minimum of loss and decay.

This means a new approach to its problem and the beginning of the era of preventive dentistry.

The mother and the dentist must begin early and coöperate, a reasonable measure of success is possible in no other way. It is essentially a child hygiene problem.—Frank A. Delabarre, A.B., D.D.S., M.D.

If you win the child by having it understand the importance of a clean and healthy mouth and teeth, you win the parent. The young mind is most receptive and will absorb your teachings quickly; therefore, it is the child who should be taught these principles of clean mouth and sound teeth.—Brun, *Am. Dental Assn. J.*, Mar., 1926.

In 1950 the care of children's teeth will be considered even more important than it is today because of the fact that it will be generally

recognized that any disease that is the most prevalent of all human ailments must be reckoned with in its earliest stages if it is to be controlled or cured.—Johnson, *Am. Dental Assn. J.*, Dec., 1925.

DENTAL HEALTH EDUCATION FOR CHILDREN

Dental health education for the child of today should have begun with his grandmother. His mother should have known and observed the principles of healthful living. His education should have begun in the home during early childhood. The intelligent interest of a mother and the regimé of a home both lend themselves to the development and continuous practice of good health habits, so that theoretically a child should enter school with sound habits already formed. Yet observation shows that because of lack of interest, ignorance and pernicious adages that have gained a foothold, because of the "don'ts" and "mustn'ts," and because of the bad examples in many homes, the child usually enters school either with poor health habits or with little idea as to what they should be. Therefore, the school becomes the logical place for an effective application of a health program. It must not only teach health habits, of which dental health is one, but also provide the stimulation which is necessary to create interest in these habits. Children go to school to be taught. The approval of the teacher and the children represents the sanction of society. Classroom campaigns for 100 per cent clean mouths, the production of plays, the making of posters, the organization of clubs, debates—various methods adapted to the age of the child—supply the motive for the establishment of the habit of brushing teeth and develop interest in mouth health.

As part of the school curriculum there should be instruction in dental health. This should stress the importance of daily cleanliness; the choice of diet, which should include instruction regarding tooth-building foods, and foods requiring mastication; the harm of an excessive use of candy, especially between meals; and the advantages of early conservative preventive dentistry.

The point should be made that dental health education is merely one spoke in the large wheel of health education.—Evelyn C. Schmidt, Chicago, Ill.

We have various avenues for dental education but I believe the most effective and the one that will bring lasting benefits is the school. A most commendable slogan for oral hygiene education would be "The child's health, the foundation of his welfare and success."—L. Pierce Anthony, *Am. Dental Assn. J.*, Mar., 1926.

In order to teach oral hygiene to children, especially young children, one must get down to the understanding of the little child. Pull out some of those cob-webbed mental pictures of your own childhood and try to remember what things impressed you. We must use the sit-up-and-take-notice kind of teaching.—M. S. Proctor, D.D.S., *Kinkergarten Methods of Teaching Oral Hygiene.*

BAD DENTAL PROPAGANDA

Don't believe all you see in street cars!

Health propaganda may be good or bad.

First, good health propaganda is that sort of information which comes from a source that speaks with authority because of a background of thorough knowledge of the matter which it desires to broadcast, and a source which asks no reward but the betterment of the public health.

Second, bad health propaganda is that kind of information that is disseminated for selfish purposes, that is not based on fundamental principles, but on superficial knowledge, is plausible but misleading, and serves no good purpose.

So it is of vital importance to look to the source of our information and to read with discrimination.

Dental hygiene is the science of dental health, and not the science of dental cleanliness. Clean mouths and teeth are most desirable and necessary, but to stress this wholly self-respecting and purely mechanical part of the toilet to the exclusion of the fundamental principles which underlie true dental health, and to do so in the name of dental hygiene, is to tell but one chapter in the story.

The well built or sound tooth is not a product of the tooth brush. The sound tooth like the sound body, is dependent upon our knowledge of the rules of health and our willingness to follow them faithfully.

With information available that will tell us the true and the whole story of dental health, we should go carefully in accepting the too freely advertised information which offers us a panacea for all our ills.—John T. Timlin, D.M.D., Boston, Mass.

FIGHTING BAD PROPAGANDA

The ordinary fairly healthy mouth requires no medication and should not be a bathing pool for the various contents of the pharmacopoeia.—J. H. Kaufmann, *Oral Hyg.*

The worst phase of this acceptance of advertising is connected with the food habits of the nation. These bad food habits are taking a toll of the health and strength of the people. These habits can be corrected by education in teaching the difference between denatured foods and fresh, natural foods.

Another habit as witnessed by the magazine covers of the December, 1921, *Literary Digest*, and the September, 1924, *Ladies Home Journal*, is the mistaken idea of beauty. Let the dental profession raise a protest when a picture of a child sucking its thumb or sleeping with an empty bottle in its mouth is held as an ideal of beauty.—M. E. Jordan, *Am. Dental Assn. J.*

THE CLEAN TOOTH VS. THE WELL BUILT TOOTH

THE WELL BUILT TOOTH

Good teeth are determined before a child is born and, the chances are, even without the use of a toothbrush, teeth that are originally sound and well constructed will remain sound for many years. The tooth brush does not make good teeth. They are developed the same as any other part or organ of the body, and if they are not well constructed and sound it will be found that the use of a toothbrush until doomsday will not save them from inevitable decay.

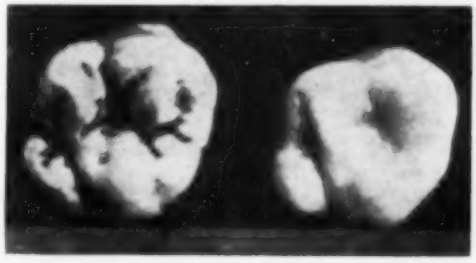
Prenatal influences, proper diet, including coarse whole foods—milk, leafy vegetables and fruit, are the things that make good teeth, not the use of the toothbrush. However, the mother should have the right diet before the birth of her offspring and the child should be breast fed a suitable length of time rather than fed upon any kind of prepared milk or other foods. This makes a great difference in the state of the teeth of a young child.

We have been taught to believe that dentists have much to do with good teeth. The work of the dentist only begins after the teeth are here, when they are all formed and in whatever condition they are developed in the jaw, which is the result of the prenatal influence, whether good or bad, so far as the teeth are concerned.

It has been said that a clean tooth never decays, but the teeth must be sound in the beginning to make this true. Prenatal influences and care are very necessary, and also as much care and attention in regard to diet and hygiene should be given when the child is from 2 to 5 years of age.

All adult dentistry diseases, except pyorrhea, are the result of poor tooth development or neglect of the proper diet and hygiene during childhood.

So, use the toothbrush, but do not depend on it as the savior of your teeth. Mothers, before the baby comes, must have the responsibility of giving good or bad teeth to their offspring and before 6 years of age the whole question of good teeth for life will have been decided.—Harold DeWitt Cross, D.M.D., Director Forsyth Dental Infirmary for Children, Boston, Mass.



Am. Dental Assn. J., June, 1925.

FINDING FISSURES AND PREVENTING DECAY

These molars had fissures alike as nearly as could be determined. One is untouched while the other has the fissures filled.

The good teeth are grown prenatally and taken care of up to the time of calcification.—Arthur D. Black, *Am. Dental Assn. J.*, Mar., 1926.

The rather discouraging fact that we have discovered is that preventive dentistry, to be most effective, must begin in the prenatal period because of the fact that a tooth is a completed end organ and its destiny seems to be determined when it is erupted or even before. The encouraging feature, however, is that the benefits of our efforts with the children of to-day must in the nature of the case be cumulative; hence, the education of the child means the prenatal application of this education in the generation to follow.—L. P. Anthony, D.M.D., *Am. Dental Assn. J.*, Mar., 1926.

All of our first teeth, and quite a few of our permanent teeth, are formed in the early stages of life, and in that period the lime salt is laid down and helps to close the fissures and grooves.

When the first molar erupts with a fissure, rendering it more susceptible to caries, we must think of the fissure and the formation of that fissure in terms of the prenatal and lactation periods, and in doing that we approach the subject from the standpoint of real prevention. —C. J. Grieves, D.D.S., *Dental Cosmos*, 1925.

THE CLEAN TOOTH

The value of a clean tooth cannot be overestimated. From the standpoint of hygiene alone, the care of the teeth is as important as the care of the body, for a child who neglects one will surely neglect the other. Cleanliness is more or less a habit and once really acquired is never lost, particularly if the parents are careful to set the child a good example.

A brushed tooth, contrary to the general opinion, is not always a clean tooth, because the brushing that most children practice is usually hurried and poorly done; therefore, it is the parents' duty to teach them to be more particular. A clean tooth is not only an aid in preventing decay but is also an aid in preventing diseases of the gums. This fact is known by those dentists who are interested in the study of gum diseases, but it is not sufficiently understood by the lay public. An unclean tooth is covered by a film called the bacterial plaque. This plaque contains a sticky substance called mucin which binds the contents of the plaque together and holds it on the tooth surface. If allowed to remain there tartar forms which irritates and inflames the gums and causes them to swell and bleed easily.

This condition is called gingivitis and if not treated by a dentist is often the beginning of what is known in later life as "pyorrhea," a disease which may affect other parts of the body and develop serious diseases, because of the pus that is formed and swallowed.—Benjamin Tishler, D.M.D., Boston, Mass.

Although cleansing is an excellent prophylactic against decay, it cannot prevent all decay because inaccessible spots between the teeth and on the grinding surfaces of the molars cannot be effectively reached with a toothbrush.—Squibb Co.

Mouth hygiene should be as carefully taught as any lesson in life so that retiring with unbrushed teeth would be a more heinous crime than getting between clean sheets with muddy shoes.—M. E. Jordan, D.D.S., "Health Habits, Good and Bad."

No one has appreciated more the value of prophylaxis than I. I have recognized in the unclean mouth a condition to be deplored, dangerous in the extreme, and demanding the best local treatment known for its correction in the respects of cleanliness. But such treatment is only part of the toilet, and while in a slight degree inhibitory, is not of much value as a preventive.—J. V. Boswell, D.D.S., *Am. Dental Assn. J.*, Mar., 1926.

THE DENTAL HYGIENIST

Why is the dental hygienist well adapted to work with children?

Children require of the dental operator sympathy, kindliness, perseverance, and all that goes with a knowledge of child psychology, to ensure successful work. The dental hygienist naturally possesses the maternal instinct which in itself is apt to include the aforesaid traits.

Then again, in her short but intensive training the dental hygienist is dealing with children for at least two-thirds of her time. Furthermore, she is working on, and therefore has more respect for, the deciduous teeth and first permanent molars.

Unlike the dentist, the dental hygienist is not concerned with repair work which has assumed such proportions that most of the 50,000 dentists have little time for anything else. A very large percentage of this dental disease could be prevented by the intelligent use of the dental hygienist at the right times—preschool and in-school periods of existence.

The field of the dental hygienist may be divided into (a) educational and (b) practical; for (1) the home and (2) the school clinic or dental office.

The child can be instructed that a set of teeth, either the first or the second growth, constitutes a wonderful machine designed by nature for specific purposes: mastication of food, talking, symmetrical development of face and head structures, including brain, beauty, etc. Every machine to be efficient requires attention to at least three factors, *e.g.:* (a) building up, (b) proper fitting of the mechanical units, and (c) cleaning.

On the educational plane the dental hygienist can impress upon the child of 6 to 16 the necessity for careful diet—a mixed one containing essentials for growth on the basis of pure milk, leafy vegetables, fresh fruit, whole meal cereals, and bread and water—this for building up reasons.

To insure proper fitting of the tooth units the dental hygienist can look for signs of malocclusion such as (a) a lack of separation of incisor region, (b) excessive over-bite, (c) open bite, etc. She can warn against thumb-sucking, tongue-sucking, etc. In a practical way the teeth can be thoroughly cleansed and gums managed.

Instruction should be given for careful mouth toilet at home.

The child may be taught, and the mother too, that lack of such procedure may lead to decay and pyorrhea and eventually to heart, kidney, and stomach troubles.—E. Melville Quinby, D.M.D., M.R.C.S., L.R.C.P.

One dental hygienist can take care of 1,200 patients a year and one dentist can properly take care of only about 400. The dental hygienist can teach, educate, and give practical demonstrations of the value of mouth hygiene.—T. P. Hyatt, D.M.D., *Am. Dental Assn. J.*, Mar., 1926.

Strange as it may seem, there are many people, including dentists, who do not understand the special field of the dental hygienist. Many of them think she is a highly trained office assistant while, in reality, she is primarily an educator.—A. S. Hughes, D.M.D., *Am. Dental Assn. J.*, June, 1925.

THE DENTAL CLINIC

The dental clinic is certainly not the answer to the dental hygiene problem if by dental clinic we mean what usually goes under that name. A dental clinic in charge of a dentist only, who fills, treats or extracts the teeth of school children of various ages at a nominal cost, does not solve any problem, but is very likely to create a variety of insoluble problems. In the long run, such a clinic is probably worse than no clinic at all, since it absorbs funds which might better be used in more constructive work.

A serious administrative problem of interest to health officers is, how the dental clinic should be financed. As ordinarily carried on by a board of health it seems like a comparative waste of effort considering the results obtained and the violence it does to the sound governmental principle that a board of health should bend its efforts toward preventing disease and keep away from treating disease. The usual dental clinic is a place where diseased teeth are treated. This type of medical relief is of course highly necessary, but it should be carried on as any dispensary would be and either should be for the poor only or should be made self-supporting. In any case it does not belong with a health department or a school department.

As a substitute for the usual dental clinic we may consistently offer the dental hygienist. Her primary function is as a teacher. She uses the cleaning of teeth as a means of contact with the children. She belongs in a school department and may properly be supported by municipal funds. Her function is not to treat disease. Her services as an educator may properly be offered free by the health department or the school department.

We have, however, by no means exhausted the possibilities of substitutes for dental clinics. Conferences for preschool children, conducted by boards of health or private agencies, can promote dental hygiene by instruction in diets. The prenatal clinic is perhaps the most valuable agent of all.

What then has the symposium on the previous pages shown us? It indicates (1) that the dental problem is primarily educational; (2) that diet plays a very large if not the largest part; (3) that attention to the prospective mother is the most hopeful phase of dental hygiene; (4) that the earlier the child is reached, the better the results; (5) that attacking the problem in the older child is probably a waste of time, comparatively speaking; (6) that the dental hygienist is an indispensable factor in the promotion of dental hygiene.—Merrill Champion, M.D., Mass. Dept. of Public Health, Boston, Mass.

Just as it has been found necessary for public boards of health to establish clinics for the control of epidemics, the prevention of the spread of tuberculosis, and other diseases, so has it been deemed now absolutely essential to the public welfare to begin to devise and carry out programs leading to the improvement of tooth and oral conditions.—G. T. Tassman, D.D.S., *Dental Cosmos*, Feb., 1926.

EDUCATION AND PUBLICITY

EVART G. ROUTZAHN *

Proposed Program for Buffalo—Among the features planned for the Buffalo meeting in October are the following:

Photographs and Other Art in Education and Publicity—a clinic session on the uses and abuses of the several forms of illustration.

Posters and Placards—a clinic for the purpose of suggesting the most usable of the poster material supplied by various health agencies and outside publishers.

Materials for Child Health Education (joint session with Child Hygiene)—a clinic aimed to arrive at a tentative agreement on a limited selection of materials for class room use.

Business and Dinner Meeting—on Monday, the opening night, to which only fellows and members and their guests will be invited.

Round Table Sessions—luncheon and dinner gatherings limited to about 20 persons to make it easy for all present to participate.

Editors of Health Periodicals—a session for discussion of problems in editing and publishing magazines.

Exhibits and Headquarters—a collection of helpful publicity and educational material and opportunity for discussion of individual problems.

The Section Council will value suggestions as to topics for the round table sessions. Radio; Newspaper Releases; Getting Volunteers to Do Your Work; Uses of Statistics; Exhibits; House Organs and Film Slides are being considered. Address Chairman Raymond S. Patterson, State Department of Health, Trenton, N. J.

Dispelling the Mystery of Medicine—"Annually, for several years, one issue of the *Wisconsin Medical Journal* has been a lay number, and has been distributed to 8,000 people. Furthermore, many state medical societies have worked out plans for extending the benefits of modern medicine to the public. In Michigan, the Joint Committee on Public Health Education has arranged lectures before parent-teacher associations and high school groups, and has found the public eager to listen and anxious to coöperate. The Kings County Medical Society of Brooklyn has gone even further by voting to admit laymen as associate members of the society. To be sure, the state society must act on this vote before it becomes effective. At all events, the tendency displayed in Wisconsin, in Michigan and in Kings County is a healthful one in every sense of the word. Traditionally, the mystery that has surrounded the dissecting room and the laboratory has excluded the public. For centuries the public did not care. Now it does care. If it cannot understand the whole subject of medicine, it wishes to have explained, clearly, such portions as it can understand. It is one office of medicine to direct public opinion in matters of health along beneficent channels to sound conclusions. Apparently, scientific medicine, in a dignified way, is accepting its opportunity."—*Jour. A. M. A.*, March 27, 1926.

Cleveland, May 26–June 2—These are the dates and place for the next professional conference of publicity and educational workers. The new Division of Educational Publicity of the National Conference of Social Work will hold 5 morning sessions during that week. The Committee on Publicity Methods in Social Work will hold sessions as follows: Clinic on Radio Talks; A Case Conference on Publicity Ethics; Clinic on Letters; The Elements of a Publicity Program; Speakers' Bureaus; House Organs; Dummy News Stories; How Can We Study Public Opinion About Social Work; Clinic on Newspaper Publicity; A Model Annual Dinner; A Meeting on Meetings; Case Stories—How to Write Them for Publication; Meeting of Publicity Secretaries of Large City Federations. Exhibits and other features will be accessible at headquarters. For detailed information write Mrs. Mary Swain Routzahn, 130 East 22d Street, New York.

* Please address questions, samples of printed matter, criticism of anything which appears herein, etc., to Evart G. Routzahn, 130 East 22d St., New York City.

MEETINGS AHEAD

Atlantic City, Wednesday, May 19, 1926—Those who wish to submit publicity materials or descriptions of methods or problems for discussion in the session conducted by Education and Publicity Section of the A.P.H.A. are reminded to write quickly to Chairman Raymond S. Patterson, State Department of Health, Trenton, N. J. Those who expect to attend this session are earnestly invited to notify Evart G. Routzahn, Secretary of the Section, 130 East 22d Street, New York, as soon as they decide to go.

PUBLICITY DICTIONARY

Under this heading will appear definitions of various terms used in publicity and educational work. What do you wish to know? Contributions of definitions are invited.

Beat—In newspaper slang is an important news article which a newspaper publishes before its rivals. In so doing, the paper beats the other papers to it.—Weaver Pangburn, New York.

Ben Day—An inexpensive engraving process whereby open spaces in line drawings are filled in by means of stippling or fine lines. Various tones and effects may be worked out by this process. Printers have samples of Ben Day effects. Ben Day, an artist, invented the process.—H. E. Kleinschmidt, Columbus.

Release Date—A day for publication set by a person or organization sending a news article to newspapers before which the article should not be used.—B. R. Rickards, Albany.

Spot News—The report of any event which has just taken place. "Just" means within the last twenty-four hours.—Louis Resnick, New York.

DATES AHEAD—JUNE

May 25–June 5—Pan-American Red Cross Conference, Washington. Address: American Red Cross, Washington. Popular health instruction is on the agenda.

June commencements—possibly a chance to get health as the subject of a graduating address.

June brides—someone may have an inspiration!

14—Flag Day—Another opportunity for the health worker with a bright idea.

19–24—World Advertising Convention, Philadelphia, Pa.—Associated Advertising Clubs of the World, 383 Madison Ave., New York. The editor will be glad to learn of health workers who expect to attend. A Clinic on Printed Matter will be a feature of the program of the Church Advertising Department, Douglas C. McMurtrie will be the critic. For further information write to editor of this department.

CAMPAIGNS

This spring an anti-spitting campaign will be organized in many cities or states. Address any tuberculosis association. A manual and campaign material supplied by National Tuberculosis Association, 370 Seventh Ave., New York.

State-wide campaign against diphtheria in New York was started January 1, 1926, by the State Department of Health and Education, State Medical Society, State Committee on Tuberculosis and Public Health of State Charities Aid Association, and Metropolitan Life Insurance Company. Samples of material will be supplied by George J. Nelbach S.C.A.A., 105 East 22d St., New York.

CONTESTS

Rhondda Mothercraft Challenge Shields Competition and National Mothercraft Competition. During May. Association of Infant Welfare and Maternity Centers, 117 Piccadilly, London, W. 1, England.

Aberdeen Irish Challenge Shield Competition of Women's National Health Association of Ireland, Dublin.

These competitions are based on written examinations of mothers.

The Minnesota Public Health Association, St. Paul, announces 100 prizes donated by business firms, to be awarded to schools in the 1926–27 health poster contest. Schools will be classed as follows: Group 1—Ungraded Elementary Schools; Group 2—Graded Elementary Schools having no special art instructors; Group 3—Graded Elementary Schools having special art instructors.

Why is a Safety Contest? by F. G. Wheeler. *National Safety News*. Jan., 1926. Why have safety contests among employes?

EDUCATIONAL MATERIAL

Dental health radio talks. Set of 14. Department of Dental Health Education, American Dental Association, 58 East Washington St., Chicago. 5 cents a copy; 50 cents a set.

A Guide to Good Meals for the Junior Homemaker, by Van Deman and Hunt, of U. S. Department of Agriculture. Superintendent of Documents, Washington. 5 cents. Hopefully brief and pleasing in style.

Health Heroes. Metropolitan Life Insurance Co., 1 Madison Ave., New York. A series of four booklets for junior and senior high schools. Already issued: Pasteur and Trudeau. To be issued: Reed and Jenner. Free.

National Safety News, 108 East Ohio St., Chicago, reproduces monthly the assortment of safety posters offered by the National Safety Council.

Printing Plant Lighting; Safe Lighting for Dusty Industries. National Lamp Works, Nela Park, Cleveland. Two recent issues among much valuable educational material. Free.

Reading with a Purpose: Our Children, by M. V. O'Shea. A pamphlet for thoughtful parents who wish a setting for their reading as well as the suggestion of specific books. Includes descriptions of Holt's The Happy Baby and Peters' Diet for Children (and Adults), etc. American Library Association, Chicago. 50 cents.

What You Can Do, by George T. Palmer. American Child Health Association, 370 Seventh Ave., New York. One cent each. A four-page reprint from *The Survey* useful in getting women's groups, Kiwanis, Rotary, etc., to check up on local health conditions.

Winning the Game. Pittsburgh District Dairy Council, Century Building, Pittsburgh. A 24-page booklet which "presents a personal message to all the boys of America" in the form of signed statements "from many of the world's greatest athletes and coaches," including Stagg, McGraw, Cobb, Speaker, Tilden and Grantland Rice. Its usefulness may extend up through high school and beyond. Includes 18 portraits.

Playing the Game is a six-page folder selected from the above. Same address.

The American Girl Health and Beauty Products. With portraits of Helen Wills and Alma Gluck, and a personal message from the latter. Not too clever to be useful. Same address.

EXPOSITIONS

Exposition for the Care of Health, Social Care and Physical Exercise. Dusseldorf, Germany. Opens in May.

Man—an international health exhibition. Budapest, Hungary. May to September.

International Child-Welfare Exposition, Antwerp, Belgium. October, 1926. Will include sections on maternity and child welfare, physical education, etc.

Sesquicentennial International Exposition, Philadelphia. Opens June 1st. There will be numerous exhibits by public and private health agencies.

INTERESTING TITLES

"Beauty and the Beast: Poison to Look Younger"—poisonous hair "treatments"—*Weekly Health Bulletin*, Connecticut State Department of Health.

"Happy Feet Make Happy Girls"—A shoe advertisement.

"I Never Thought of That"—*Health Bulletin*, North Carolina State Board of Health.

"The Man-Eating Microbe"—*Monthly Bulletin*, Indiana State Department of Health. Also, *Hygeia*, Apr., 1926.

"Opening Doors: A Little Book for the Mothers of Babies Who Are Long in Learning to Behave Like Other Children of Their Age"—An English book.

"Preventing Catching Disease"—Oregon State Board of Health press release.

"Spring Feveritis"—*Northwestern Health Journal*, Mar., 1926.

"What Can I Do with Johnny?"—*Mental Hygiene*, Jan., 1926.

LISTS

If you wish to secure a printed list of any group of people or any type of organization for educational or financial purposes the chances are good that you will locate it through Mailing List Directory by Linda H. Morley and Adelaide C. Knight. McGraw-Hill Book Co., 370 Seventh Ave., New York. 1924. 720 pages. $10. Will be sent 10 days for examination.

Directory of Hospital and Allied Associations. In monthly issues of *Modern Hospital*, 22 East Ontario St., Chicago. 35 cents.

Nurses Holding Executive Positions in States. In *Public Health Nurse*, 370 Seventh Ave., New York, Jan., 1926.

METHODS AND ACTIVITIES

The Bandit's Progress, by Martha Bensley Brure. *Survey*, 112 East 19th St., New York. Mar. 1, 1926. 30 cents. Illustrations of effective story picturing—if you can secure the scissors artist.

Cards and Posters Reduce Jaywalking. *American City*, 443 Fourth Ave., New York. Mar., 1926. What Cleveland did recently. 50 cents.

Cutting Down Accident Totals in a Steel

Car Shop, by H. G. Hassler. *National Safety News*. 108 East Ohio St., Chicago. Apr., 1926. Four illustrations of graphic devices usable in any industry.

Domesday for Diphtheria, with photographs by Hine. *Survey*. Apr. 1, 1926. Suggests pictures you may take to illustrate a report.

Edit Your Copy with a Camera. Warren Paper Co., 101 Milk St., Boston. 26 pages. Illustrated argument for using pictures. Free.

Exercises for the Business Woman, by Lydia Clark. *Hygeia*, 535 North Dearborn St., Chicago. Nov., 1925. Note the illustrations.

Industrial Health Service in Louisville, Ky., by Marguerite Marsh. *Bulletin*, National Tuberculosis Association, 370 Seventh Ave., New York. Mar., 1926. Describes use of bulletin boards in factories. Free.

Making a Seal Sale Educate, by Marguerite Marsh. *Survey*. Nov. 15, 1925. Some country educational efforts.

Plans for and Results of a Statewide Dental Health Week, by C. J. Hollister, D.D.S., Harrisburg, Pa., in *Journal of American Dental Association*, 58 East Washington St., Chicago. Mar., 1926.

Tips on Talks, by Margaret E. Green. *National Health*, 5 Travistock Square, London, W. C. 1, England. Mar., 1926. Ninepence. Conclusion of a series of articles.

Trouping through Ohio for Health. *Nation's Health*, 22–24 East Ontario St., Chicago. Dec., 1925. Experiences with Ohio's "health-mobile" at county fairs; information as to equipment. For reprint of article ask Dr. H. E. Kleinschmidt, State Department of Health, Columbus, Ohio.

Volunteers and the Community, by Mrs. Elbert L. Carpenter. *The Family*, 130 East 22d St., New York. Mar., 1926. 20 cents. A plea for using them—some reasons—some difficulties.

What Civic Organizations Can Do for Safety, by W. G. Cole. *National Safety News*. Apr., 1926. How schools and local community organizations may coöperate in educational work.

What types of publicity have been most successful in maintaining the support of counties and small towns in public health nursing services? *Public Health Nurse*. Mar., 1926. Brief reports from workers.

Why Should Hospitals and Newspapers Coöperate? *Modern Hospital*, 22–24 East Ontario St., Chicago. Feb., 1926. "First of a series by a reporter whose experience qualifies him to understand the problems of both."

MOTION PICTURE

New Ways for Old. Metropolitan Life Insurance Co., New York. Producer: Carlyle Ellis. An exceptionally well done one-reel picture expressing a few ideas. Adaptable to a wide range of audiences.

NEW BULLETINS

Bulletin, American Heart Association, 370 Seventh Ave., New York.

Dairy Council Nems, National Dairy Council, 910 South Michigan Ave., Chicago. Free. Monthly news and ideas for those interested in the educational promotion of increased use of milk.

Social Hygiene News, American Social Hygiene Association, 370 Seventh Ave., New York.

Union Health Center News, Union Health Center, International Ladies' Garment Workers' Union, 131 East 17th St., New York.

SCHOOLS AND CHILDREN

A Few Important Don'ts for Boys and Girls. *Hygeia*. Nov., 1925. Photographs with brief text.

Health and Physique of School Children, by James F. Rogers. U. S. Bureau of Education. Superintendent of Documents, Washington. 10 cents.

Health Posters for School Children. Albert C. Mitchell, 1809 Nueces St., Austin, Texas. Includes descriptions of "Health Fairy's House," "Captain Milk's Castle," and "The Vegetable Race"—devices produced originally for the Texas Department of Health. Free.

Lessons on Food and Growth from White Rats, by Kathryn Maddrey. *Hygeia*. Apr., 1926. Nutrition experiments with white rats conducted by school children.

Over the Three Hills to Health. Vermont Tuberculosis Association, 139 Church St., Burlington. A game, with spaces to be colored, and a wooden cube and counters for playing the game. Given to school children who sold 100 Christmas seals. Sold for 10 cents to those buying seals by mail. An interesting idea. Is it interesting as a game? Does it teach health?

A Parade of Clean Children, by Katherine L. Carber. *Hygeia*. Mar., 1926. 2 illus. An idea for a parade.

Posture charts, by U. S. Children's Bureau. Superintendent of Documents, Washington. Three for boys, and three for girls, each 24 by 34 inches. Each set 25 cents.

The Simple Family. Education Section, National Safety Council, 120 West 42d St., New York. Set of 8 posters. $1. Two color posters, 11 by 14 inches. Street play, matches, guarding the baby, etc.

Suggestions to Teachers Regarding Sources of Material. In monthly issues of *Food and Health Education*, 37 West 39th St., New York. Brief descriptions of more or less educational material offered free by food manufacturers for children or adults.

Teach Them How to Save Their Sight, by Kirk M. Reid. *Journal of the National Education Association*, Washington. Mar., 1926. Hints for teachers.

A Traffic Game for Children. *Hygeia*. Feb., 1926. A game to teach safety.

What Do Parents Think? by C. E. Turner. *Journal of National Education Association*. Mar., 1926. One of a series on "adventures in health education."

SLOGANS

"Baby Week Makes Baby Strong"—The first Baby Week in England in 1912.

"Man vs. Microbe"—Illinois Health Promotion Week, 1926.

"No diphtheria in Syracuse in 1930!"—Syracuse Department of Health and Syracuse Health Demonstration.

LAW AND LEGISLATION

JAMES A. TOBEY, LL.B.

Health Bills Before Congress—Between March 5 and April 3 there were introduced in Congress 20 measures which might be considered as of interest to sanitarians. About half of these bills were, however, concerned with hospitals for veterans and were either for the purpose of authorizing new hospitals or for the erection of additions to old ones. If Congress would appropriate as much money for public health and preventive work as some of its members would like to have spent on relief and cure, it is barely possible that national vitality would be promoted to such an extent that there would be less necessity for this relief and cure. Making Congress, or any legislative body, realize that fact is, however, a most complicated problem, in fact, about as simple as teaching evolution in Tennessee or Mississippi.

Lye and Caustics—The most important progress in federal health legislation since the abstracts in the last issue of the JOURNAL was a favorable report on April 1, 1926, by the Interstate and Foreign Commerce Committee of the House on H.R. 10823, a bill to require certain dangerous, caustic, or corrosive substances shipped in interstate or foreign commerce to be labeled as poisonous, and the labels to bear directions for treatment and the antidote to the poison. The report says that this bill was sponsored by the American Medical Association and has been approved by the American Public Health Association and other organizations, though it is a Senate bill, S. 2320, which has such indorsement. The House bill includes cresol in 2 per cent concentration as a poison and there is much opposition to this provision. The Senate bill was reported some time ago. According to the report of the House committee, 12 states have legislated specifically with respect to caustic alkalis and acids, these states being: Colorado, Florida, Louisiana, Minnesota, Nevada, New Hampshire, New Jersey, Oregon, Pennsylvania, South Carolina, Vermont and West Virginia. The report concludes, "It is hoped that the enactment of this measure may stimulate uniformity of law and labeling throughout the country. Pending such uniformity of action by the several states, a federal law seems necessary for the protection of the public in those localities where no similar legislation has as yet been adopted."

Retirement for Nurse Corps—On April 2 the Senate passed S. 3037, a bill to provide retirement for the Nurse Corps of the Army and Navy. This measure allows nurses to retire after serving 30 years, or at the age of 50 years if 20 years have been served. Annual pay during retirement is set at 3 per cent of base pay, multiplied by the number of years of service rendered, but not exceeding 75 per cent of the base pay at time of retirement.

This bill does not apply to nurses of the Public Health Service. The Parker bill (H.R.

10125) for coördination of federal health activities provides for a nurse corps in the Public Health Service, similar to that in the Army.

Tuberculous Veterans—Mr. LaGuardia of New York introduced on March 17 a bill (H.R. 10435) to grant maintenance allowances to "tubercular" veterans who might elect to take this in lieu of hospitalization. The maintenance would be at the rate of $4.75 per diem and would continue as long as the veteran had the disease. He would have to submit to a medical examination every 6 months. An arrested case would be granted a compensation of not less than $60 a month. If this bill were adopted, public health officials would probably have to deal with the problem of many consumptives who ought to be in hospitals. The National Tuberculosis Association does not favor this measure.

Hospitals—The new bills relating to hospitals are: S. 3597 and H.R. 10397 for an addition to the veterans' hospital at Palo Alto; S. 3689 and H.R. 10664 to convert the veterans' hospital at Walla Walla; H.R. 10358 to add to the veterans' hospital at St. Cloud, Minn.; H.R. 10398 for a veterans' hospital in Kentucky; H.R. 10426 for an addition to the veterans' hospital at Fort Snelling, Mich., and H.R. 10471 for a veterans' hospital at Detroit. S. 3738 is for the sale of the present marine hospital at Detroit. H.R. 10782 is for the purchase of certain quarantine stations in Texas.

Extension of Maternity Act—On April 5 the House passed the bill (H.R. 7555) to extend the provisions of the Federal Maternity and Infancy Act for 2 years after June 30, 1927, when the 5-year period would otherwise expire. The bill was called up by Representative Parker, also the author of the measure (H.R. 10125) for coördination of all federal health activities, under suspension of the rules and was passed after considerable debate. Mr. Newton of Minnesota made a strong plea for the act, stating that the law had been a success, and cited many facts to bear out this contention. Mr. Andrews of Massachusetts opposed the bill, calling the present law "futile extravagance." Messrs. Madden of Illinois, Tucker of Virginia, and Mills of New York also opposed the bill, while Mr. Barkley of Kentucky defended it. The latter read a telegram in favor of the bill from the health commissioner of Virginia. In the course of his remarks Mr. Barkley said, "I hope the vote on this measure will be so overwhelming that the country will clearly understand that this Congress is as greatly concerned with the preservation of human life as it is with that of the animals, and that we place at least as much value upon the life of a child as upon that of a boll of cotton. We have for a long time legislated on behalf of cattle and cotton; let us now do our duty by the children, who are infinitely more valuable and important than any other thing on this globe."—*Congressional Record*, page 6,725.

Miscellaneous—A resolution has been introduced in the House (H.R. Res. 193) to investigate the right of Chicago to divert water from Lake Michigan for sanitary purposes in the amount of 10,000 cubic feet a second. Mrs. Norton has introduced H.R. 10205 for better enforcement of narcotic laws. H.R. 10903 is to prevent pollution of navigable streams. There are also a couple of amendments to the pure food law, H.R .10502 and H.R. 10898.

Speeches in Congress on Health—Although there has been little progress on federal health legislation, a number of addresses of interest to sanitarians have been delivered in the Senate and House.

Progress in public health in Haiti since American intervention is outlined in the Appendix to the *Congressional Record* of March 10, page 5132.

On March 11, Mr. Lindsay of New York addressed the House on the care of veterans suffering from tuberculosis and other maladies. His speech, entitled "In the Valley of the Shadows," is reported in the *Congressional Record*, pages 5195–5199. He stated that tuberculosis claims 8,845, or 32 per cent of the disabled soldiers now in hospitals, and gave detailed figures as to their distribution throughout the country. There are 12,643 cases of mental and nervous diseases and 5,448 surgical and general cases, the total number of veterans in hospitals on January 1, 1926, being 27,244. Mr. Lindsay would like to have commutation and transportation provided so that persons related to veterans by blood or marriage could travel to see them, and he has introduced a bill (H.R. 6537) to this effect.

The status of insane veterans was presented to the House on March 26 by Mr. Kindred of New York, who is a physician and a lawyer. He pointed out that at the commencement of the fiscal year 1925 there were available in all Veterans' Bureau hospitals a total of 15,861 beds, 5,203 for neuropsychiatric cases, 6,510 for tuberculosis, and 4,148 for general diseases.

The total beds available from all sources was 30,479, an increase for 1925 of 5,469. He also recommended a 100 per cent disability rating with hospitalization for tuberculosis cases.

Extension of the maternity and infancy act was advocated in the Senate on March 31 by Mr. Sheppard, one of the authors of the original act. Bills have been introduced to extend the provisions of the act for 2 years, as it would otherwise come to an end on June 30, 1927. Mr. Sheppard pointed out that there has been a substantial drop in the infant mortality rate since the enactment of the law in 1921, but that our infant death rate is still higher than that in Australia, the Netherlands, Norway, Sweden, and the Irish Free State, and that no state has as low a rate as New Zealand. For these reasons and others, reported on pages 6433-6436 of the *Congressional Record*, Mr. Sheppard believes that the law should be continued for at least 2 more years. Other agencies, notably the American Medical Association, do not seem to concur in this belief. As to the merits of these contentions we express no opinion, but we believe that it is likely that Congress will extend the act.

Memorial to Dr. Crawford W. Long—A marble statue to Crawford W. Long, M.D., was unveiled in Statuary Hall at the Capitol on March 30. This statue was presented by the citizens of the State of Georgia to commemorate this physician as the first person to use ether as an anesthetic. It is claimed that Dr. Long employed ether in surgery as early as 1842. There has been much controversy as to who has the priority in this invention. According to Whipple in his *State Sanitation*, Dr. W. T. G. Morton, a Boston dentist, was the first to appreciate fully the importance of sulfuric ether and used it successfully in 1846. Dr. C. T. Jackson, a physician of Boston, also has supporters as the inventor of the process. At any rate, Dr. Long of Georgia now has a statue in the National Hall of Fame as the real discoverer. This statue was brought about by popular subscription and was donated to the Capitol by the Crawford W. Long Memorial Association and not by the State of Georgia, which, however, it represents, each state being entitled to two statues in this somewhat motley collection.

The Supreme Court and Minimum Wage Legislation—In April, 1923, the United States Supreme Court held unconstitutional the minimum wage law of the District of Columbia on the ground that it was in contravention of the Fifth Amendment to the Constitution. This case, Adkins v. Children's Hospital, 261 U. S. 525, was outlined and discussed in this section of the JOURNAL shortly thereafter, and the comment made that the decision illustrated the fact that the courts sometimes did not keep up with progress in social welfare. Recently the National Consumers' League has compiled leading comments by the legal profession on this important case and has issued them in a 281 page book published by the New Republic, Inc. This interesting book contains an introduction by Dean Roscoe Pound of the Harvard Law School and 17 articles taken from various law journals. An appendix gives the text of the decision and the dissenting opinions of Chief Justice Taft and Mr. Justice Holmes. Of the articles, that of Thomas Reed Powell is, perhaps, the most significant. He shows in it how the result of the case depended primarily upon the personalities of the various courts which passed on the law.

This minimum wage act was passed in the interests of the health and morals of women of the District of Columbia. Justice Sutherland, in delivering the opinion in the case, stated that the health of working women was extraneous to the employment. On this point Professor Powell says (page 34), "This need to live in health does, it is true, 'arise outside of the employment,' but it becomes a need of the employment while the employment continues"; and later (page 43), "it is an essential condition of industry that employees should be maintained in health."

This book should be of value not only to lawyers and sociologists, but also to sanitarians interested in industrial welfare. After the reader has performed the irritating task of cutting all the pages, he will find much that is worth while.

A Decision on Stream Pollution—The Railroad Commission of Wisconsin conducted an investigation on the pollution of a stream in the state by wood pulp and paper mill wastes and on February 20, 1926, issued an interesting opinion. After summarizing the evidence in excellent fashion, the commission held that "while some streams in Wisconsin are badly polluted it is reasonably practicable to so control this pollution as not materially to affect the aquatic life of the stream." It was also suggested that the paper industry maintain a

sustained, systematic, and scientific search for the solution of the problem of the disposal of waste materials from pulp and paper mills in coöperation with such state and federal agencies as may be available.

The 64 page report published by the commission is well summarized in *Public Health Engineering Abstracts* for March 20, 1926.

Bedding and Public Health—In 1923 Pennsylvania passed a law prohibiting the use of shoddy in bedding, this act being intended for the protection of public health. The law was contested by a Connecticut manufacturer who was sustained in his contention that the law was unconstitutional by the Federal Court in Pennsylvania. The United States Supreme Court upheld this decision on March 8, 1926 (Weaver v. The Palmer Brothers). This court held that since all danger from disease could be eliminated by proper sterilization it was unreasonable to prohibit absolutely the use of shoddy. Thus, the law in question could not be sustained as a measure to protect health. The court stated in the course of the opinion, "There was no evidence that any sickness or disease was ever caused by the use of shoddy. And the record contains persuasive evidence and by citation discloses the opinions of scientists eminent in fields related to public health that the transmission of disease-producing bacteria is almost entirely by immediate contact with, or close proximity to, infected persons; that such bacteria perish rapidly when separated from human or animal organisms; and that there is no probability that such bacteria or vermin likely to carry them survive after the period usually required for the gathering of the materials, the production of the shoddy, and the manufacture and shipping of the comfortables."

This decision has two striking lessons: (1) all health legislation must be reasonable, a fundamental and well-established principle; (2) the courts *do* keep up with scientific progress. A good abstract of this decision appears in *Public Health Reports* for March 19, 1926.

Miscellaneous—The United States Bureau of Home Economics has issued a bulletin entitled, "A Guide to Good Meals for the Junior Homemaker" (Circular 49). The first 6,000 of these which were printed for free distribution went in a very short time, so that for the present this pamphlet must be obtained from the Superintendent of Documents at 5 cents.

The Institute of Economics of Washington, D. C., has recently completed a study of industrial accidents. A bulletin on industrial accidents to employed minors in Wisconsin, Massachusetts, and New Jersey has been issued by the United States Children's Bureau (Publication No. 152).

The *Public Health Nurse* for March, 1926, contains an article on recent state legislation on public health nursing.

The United States Department of Agriculture has just issued a bulletin on Rural Hospitals (Farmer's Bulletin No. 1485). This will be reviewed later.

The Republic of Chile has recently issued an official sanitary code. Chile has a Ministry of Hygiene, Social Agairs, and Labor. There is a director general of health and a council of hygiene. Chile has had the services of Dr. J. D. Long of the United States Public Health Service as advisor on health matters for the last year or so.

A compulsory school vaccination law has been upheld in Iowa, and the right of the New York City Health Department to choose physicians as examiners of food handlers has been sustained in New York. These cases will be reviewed later.

Applied Municipal Sanitation

By V. M. EHLERS, *Chief Sanitary Engineer;* E. G. EGGERT, *Sanitary Engineer; and* ELLA G. WHITE, *Secretary, Division of Sanitary Engineering, Texas State Health Department.*

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